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LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interests of Lake Carriers, and improve the character of the service rendered to the public.

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COMMITTEE ON AIDS TO NAVIGATION.
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A DEEP WATERWAY TO THE COAST.

The complete report of the deep waterways commission has been sent to the House of Representatives by Secretary Root. The project before the commission is one of vast magnitude, for a deep waterway and route between the Great Lakes and Atlantic tidewater. The estimated cost of a twenty-one foot waterway is given at $206,358,000, and of a thirty foot waterway at $317,284,500. An additional estimate is made for deepening the harbors at Chicago and Duluth, making the total aggregate for the thirty foot channel $326,892,000. The cost of annual maintenance of the twenty-one foot waterway is given at $2,343,478, and of the thirty foot waterway, $2,930,308. The most favorable route, the commission states, for a thirty foot waterway from the lakes to the sea is from Lake Erie to Lake Ontario via La Salle and Lewiston and from Lake Ontario to the Hudson river via Oswego and the Mohawk valley, and that the same route is practically as favorable as any for the twenty-one foot waterway. It is also pointed out by the commission that this route is entirely in our own country. The following conclusions are stated: "As the result of this investigation it appears that the twenty-one foot waterway promises a much greater return of value relative to its cost than the thirty foot waterway. The main advantages of the thirty foot waterway are that it would furnish the lowest cost of transportation proper to foreign markets and permit the construction of the largest seagoing vessels on the lakes."

The report is signed by Raymond, Noble and Wisner, constituting the commission.

COSTS OF AMERICAN AND BRITISH MARINE ENGINES.

It has been the generally held opinion among those qualified to judge that British shipbuilding establishments and their methods compare more favorably with American establishments of the kind than those devoted to any other of the metal-working industries. Until quite recently, in fact, it has seemed that development and improvement in shipbuilding plants in America had not by any means kept pace with what is to be seen in other lines, such for instance as tool building, or locomotive and stationary engine building. Few, however, were prepared to accept such figures of relative costs in the two countries as were given by George W. Dickie, of the Union Iron Works, in his paper recently read before the Society of Naval Architects and Marine Engineers, in which he said that on the hull of "an average ocean-going freight and passenger steamer" labor costs in American yards are 25 per cent greater than in British and for the machinery 50 per cent greater.

In another part of the paper he states that machinists and boiler makers receive about 50 per cent higher wages here than in Britain, from which we must conclude that the British workman does about the same amount of work in a given time as is done by American workman in marine engine and boiler shops. If this is so, then we believe that these two branches of engineering work are about the only ones of which the same can be said. British employers and workmen are generally agreed that more work is done per hour per man here than in British shops and none are more emphatic on this point than English or Scotch machinists who come over here and work in American shops. If the marine engine shops are an exception in this respect, it will be of some importance perhaps to find out whether it is because British marine shops are so much better than other British shops or because American marine shops are so much worse than other American shops, and we believe that evidence can be found for both hypotheses, particularly the last-named one.

It is worth noting, however, that Mr. Dickie's statements did not go unchallenged in the meeting and men presumably equally familiar with the industries concerned were apparently free to state their conviction that no such differences of cost existed as were mentioned by Mr. Dickie.—American Machinist.

ILLINOIS CANAL.

The final report of the board of army engineers, consisting of Col. J. W. Barlow, Major J. H. Willard and Major C. McD. Townsend, appointed to survey and estimate the cost for the improvement of the upper Illinois river and lower Desplaines river to extend navigation from Lake Michigan to the Illinois river, with estimates of cost for channels seven and eight feet deep, has been submitted to Congress.

The report presented is for waterways of seven and eight feet depth from Utica to Marseilles, around Marseilles rapids by canal, thence in the bed of the river to near the mouth of the Kankakee, thence through the Illinois and Michigan canal to the Joliet basin, thence by canal to the sanitary canal at Lockport and thence via the sanitary canal and Chicago river to Lake Michigan. These projects call for the construction of twelve locks and two dams with movable weirs, the estimated cost being:

For seven foot project, $7,317,977; for eight foot project, $8,653,247.

AMERICAN STEEL IN GERMANY.

Writing from Frankfort, Vice Consul-General Hanauer says: Mr. Wiegand, the director-General of the North German Lloyd Steamship Co., at a public festival recently, made a speech in which he defended his company against the attacks made on it by German industrial circles on account of the company's late purchase of 1,000 tons of steel in the United States. The director said: "We have during the six years past paid to German industries over $30,940,000. The order given to American steel works, amounting to about $70,000, is insignificant compared with these figures. It is not to have 10 per cent. in price that this order was given to a foreign concern, but the Lloyd company would not have reached its present position had it not utilized the improvements offered by outside manufacturers. We would like to see German industry brought to the utmost tension by foreign competition and not afraid to meet it at home; thereby the only possibility exists for us to maintain our place in the international contest for economic fitness.

SUBSIDIZE U. S. SHIPPING.

The National Magazine of Boston for January contains an article by Marcus A. Hanna on "The Revival of American Shipping."

This is the first time Mr. Hanna has written anything on the subject for any magazine, and the article indicates that Mr. Hanna has not lost any enthusiasm or confidence in the ship subsidy bill. The article in part follows:

"Forty years ago this nation contested with Great Britain for supremacy upon the sea. In those days, and before railroads had gridironed the country, it was to the transportation upon the seas that our people looked with the greatest pride. All of these things have changed. With the disappearance of our ships came the advent of our railroads, transcontinental and otherwise, and our capital was busily and profitably employed in those colossal undertakings, so that we were indifferent to the lack of opportunity for profitable investment in ships in the foreign trade. Just the reverse was the case with our foreign rivals, especially Great Britain.

"There was neither opportunity nor necessity for railroads building there that was here. * * * The cost of running ships under the American flag has been computed at between 30 and 40 per cent. higher than the cost of running foreign-built ships. It is due to the higher wages paid to American officers and seamen and firemen, and to the better quality and larger quantity of food furnished them.

* * *

"The value of the ships that are built in the United States and the value of the men who man them to our navy in time of trouble will more than compensate the United States government—the American government—for all the money they expend in inducing our citizens to build and to run ships under the just provisions of this bill. * * *

"The bill provides compensation at the rates fixed in the bill for a period not to exceed twenty years, and at no time shall the sum so expended exceed in any one year $9,000,000.

"As soon as enough vessels come into existence to absorb all of this sum in any one year, each additional ship thereafter built draws from the others in existence a pro rata share in the compensation sufficient to give the latter, size and speed equal, the same compensation that the others receive.

"It is not intended to encourage Americans to buy foreign-built ships—it is intended to encourage them to buy only American-built ships.

"If the American people can be brought to understand the need and value of an American merchant marine to the nation, then the bill now pending makes provision for such an accomplishment by what is considered by those who have studied the question for years, the only plan that will practically and quickly establish American ships upon the high seas. This result, it cannot be said too emphatically, will entirely fail of accomplishment unless there is a very substantial reduction in the rates of freight charged for the carrying of our imports and exports, as only by reducing rates can American ships expect to wrest any of the carrying from their foreign competitors.

"There can be no monopoly of any route by any line or class of ships. The route is open to any American ship that chooses to enter it. Any American may build that type of ship that he believes will be most advantageous to him under the terms of the bill. The pending shipping bill is an equitable, honest, scientifically drawn, automatically adjustable measure, destined to place the American flag once more upon the seas, to the material benefit of all the American people. The benefit of such an accomplishment in perfecting the defences of the nation will be worth, each year, the entire cost of the operation of the measure during its entire life."

CLEVELAND.

Special Correspondence to The Marine Record.

Capt. Geo. P. McKay and Mr. W. H. McGean are making arrangements for transportation to Detroit and return for members of the Lake Carriers' Association and others who will attend the annual meeting at Detroit Jan. 16, and if all the parties interested will communicate with Mr. McGean at once better rates can be secured.

The big steamer building at the local yard of the American Ship Building Co. for the Cleveland Steamship Co., will be launched Saturday, Jan. 5. She is a duplicate of the steamer William E. Reis, owned by the same company, and she will be named for Walter Scranton, president of the Lackawanna Steel Co. Officers for the new boat have not yet been appointed.

Shipments of iron ore by water from the Lake Superior region in the season of 1900, says the Iron Trade Review, amounted to 18,570,315 gross tons. Returns just received from Lake Erie dock managers, show that of this amount there was sent to Lake Erie ports 15,797,787 gross tons. This figure establishes a new record, the total for 1899 having been 15,222,187 tons.

Announcement is made of another quarterly dividend of 1¾ per cent. to holders of preferred stock of the American Ship Building Co., payable Jan. 15 to stockholders of record at the close of business Jan. 5. Books of transfer close Jan. 5 and are re-opened Jan. 16. The company's common stock has been steadily advancing of late, evidently in anticipation of its sharing with the preferred in a dividend at the close of the company's year in July.

At the annual meeting of the local lodge of the Shipmasters' Association, the following officers were elected: President, R. J. Cowley; first vice-president, S. C. Allen; second vice-president, Frank W. Stenton; financial secretary, Olef Olson; recording secretary, Louis Allen; treasurer, Thomas Jones. R. J. Cowley was elected delegate and S. C. Allan alternate to the grand lodge meeting which will be held at Port Huron Jan 29.

Another good sized vessel has been added to Cleveland's large fleet. Charles L. Hutchinson and Martin Mullen bought the big wooden schooner Abyssinia from Capt. James Davidson, of Bay City. The price was about $65,000. The Abyssinia, which was built by Capt. Davidson, came out in 1896, and her capacity is about 3,600 tons. She is laid up at Buffalo. Messrs. Hutchinson and Mullen will organize a company to operate the Abyssinia, and she will tow with one of the steamers managed by Capt. Hutchinson.

The big wooden vessel Abyssinia, was sold last week by Capt. James Davidson to Capt. Charles L. Hutchinson, of this city. She will be operated in the ore and coal trade. This makes two big craft that Capt. Hutchinson has purchased this winter, the first one having been ordered from the American Ship Building Co. It is expected that a company will be organizd for the purpose of operating these boats. Martin Mullen, formerly with Mr. Cuddy in the coal business, is interested in this vessel property and will probably be an officer of the company.

A short time ago the statement was made that a movement is on to lift the burden of the stevedore's wages from the shoulders of the owners and place it upon the shippers. This is to be especially true of ore, a precedent having been established in the Carnegie-Rockefeller agreement. The movement has assumed some more definite shape since then, and it is now proposed that a committee shall be appointed at the annual meeting of the Lake Carriers' Association, which shall be requested to hold conferences with the shippers and the longshoremen's union, with a view to bringing about the desired result. The shippers are not saying much of the project, preferring to withhold their statement until they have been approached by the committee of the Lake Carriers, but there is an understanding that they are not averse to the change. The movement has practically been fostered by the Bessemer Steamship Co., and the statement is made that even should there be no general movement the Conneaut docks will be operated in that way. This, of course, is due to the agreement before referred to, but this determination is likely to rule the lakes, seeing the powerful influence the Carnegie and Rockefeller interests wield.

General Manager James C. Wallace, of the American Ship Building Co., has closed a contract with the Western Transit Co. for a package freight steamer to come out late next season. The new boat will be practically a duplicate of the steamer Starrucca. She will be 345 feet over all, 325 feet keel, 44 feet beam and 28 feet deep. She will have quadruple expansion engines, cylinders 19, 29½, 35 and 58 inches, with 48-inch stroke, and steam will be furnished by three Scotch type boilers 11 feet in diameter and 11½ feet long, to be allowed 210 pounds of steam She will be fitted with Howden forced draft. The new boat will be operated between Buffalo and Chicago, will carry 3,000 tons of package freight and will run at the rate of 13 miles an hour. She will cost about $280,000. It has been decided at which of the company's yards she will be built. This makes 31 vessels that the American Ship Building Co. has under contract. More than 100,000 tons of material will be used in the construction of the 31 vessels and about 7,000 men will be given employment at the different yards turning the boats out. The weekly pay roll of the American Ship Building Co. amounts to over $150,000, and a still further increase is in sight.

The American Ship Building Co. has the distinction of the first launching in the United States in the twentieth century. This honor was achieved on Wednesday, at Lorain. The Saturn, the duplicate of the Neptune, launched two weeks ago, slid off the ways at 12:40, and was christened as she passed the visitors' stand by Miss Helen Baine, the daughter of C. W. Baine, of the Pittsburg Coal Co., of Pittsburg. There were present W. C. Gibson, of Buffalo; William McDowell, of Medina; R. E. Schuck, C. R. Martin and F. P. Zollinger, of Sandusky; J. C. and William Gilchrist, Robert Wallace, Mr. and Mrs. E. F. Beyer, Mrs. C. W. Baine and daughters, Ethel and Helen, Misses Gertie and Mildred Vilas, Grace and Fanny Oviatt, Helen Miller and Marion Sowden, Messrs. E. L. Rich, F. S. Baker, Malcolm Vilas, O. T. Weaver, Lindsay and Lee Wallace and Carl Britton, of Cleveland. The party came in a special car on the Lorain & Cleveland electric road. They were given a lunch at the office after the launching. The Neptune is 366 feet long, 48 feet wide, 28 feet deep and has a carrying capacity of 6,000 tons on a draft of 18 feet. Two other boats for this fleet will also be built at Lorain, the Mars and Venus. The keel of the latter will be laid in the berth just vacated. The Mars is well under way. G. W. Bitzer, of New York, representing the American Biograph Co., photographed the launch with a machine that makes 1,800 exposures per minute.

The following is from the Manitowoc Daily News: Saturday evening just previous to his departure for his home in Cleveland, Capt. Dobson, of the steamer Manhattan, received the following most complimentary letter: Light-House Establishment, office of Light-House Inspector, Ninth District, Chicago, Dec. 20, 1900: Capt. Dobson, steamer Manhattan, Manitowoc, Wis.—Sir: I have been informed by Mr. Shields and Mr. McCauley, keeper and assistant keeper of Squaw Island light station, of the humane courtesy as also unremitting kindness and attention, shown them by you and those of your command, from the moment they were rescued by you from their capsized boat near Whisky Island, Lake Michigan, on Dec. 14, 1900. As the light-house inspector in this district I wish to express to you my appreciation of your courtesy, which was of that character always extended by a true sailor and noble nature, to those in real distress. It will be my pleasure to bring your courtesy to the attention of the Light-House Board. Respectfully, F. M. Symonds, Commander, United States Navy, Inspector of the Ninth Light-House District. Capt. Dobson was naturally pleased at the complimentary letter, but being of a retiring disposition, was not anxious that it should be made public, and perhaps it would not had it not been for his many Manitowoc friends. Capt. Dobson is yet a young man, but has proved himself a most efficient skipper. He has a bright future before him.

A meeting of the executive committee of the Lake Carriers' Association was held on Monday to take up matters pertaining to the annual meeting of the general organization in Detroit, January 16. It was not expected that any one subject of special importance would be taken up at the annual meeting this year, but as a result of a long petition from wheelmen, watchmen, firemen, and other help engaged on lake vessels, it is more than probable that the vessel owners will encourage the organization of a federation taking in nearly all the men on the ships. The petition, which is in the hands of Capt. George P. McKay, treasurer of the association and a member of the executive committee, contains about 400 signatures, although it was circulated at only two or three ports. It asks especially for the establishment of a fund for the care of personal injury cases and for the payment of stated amounts in case of death or total disablement. The movement has been started by men from salt water, who know of the widespread influence of the Seamen's Federation throughout Europe. Officers of the Lake Carriers' Association here say the matter will be taken up in a systematic way, and as the organization is not of the kind that does thing by halves, it is more than proabable that the vessel owners will be found in the lead with a new method of dealing with labor. Of course, it is expected that the scope of the organization and its relations towards the vessel interests will extend beyond the beneficial features.

The Davidson dry-dock at Bay City has been placed in service after a satisfactory test of the pumping machinery. When full, the big basin contains a trifle less than 5,000,000 gallons of water, and this amount was pumped out in one hour and forty minutes, establishing what is claimed to be a record for dry-dock service. The pumping machinery is of the latest improved type. There are two pumps, each having a pumping capacity of 21,000 gallons per minute, discharging the water through a 20-inch outlet. The power is furnished by a 325 horse-power Hamilton-Corliss engine. In order to insure perfect regularity of suction in the pumps, an immense iron fly wheel, fifteen feet in diameter, weighing over ten tons, provides for steady action of the machinery. The pumping station is two stories high and is 80 feet long by 35 wide.

BUFFALO.

Special Correspondence to the Marine Record.

Edward A. Bond, State Engineer and Surveyor, will report that one of his principal duties has been the making of a survey and plans and estimates for a barge canal across the state, for which $200,000 was appropriated. This survey is completed and the results are in progress of preparation, and will be presented to the legislature in February, 1901. The report will be exhaustive and will include the results of studies by specialists in all the different features involved in the design of a modern canal; it being the intention of the State Engineer that the plans for the work will be thoroughly considered that the estimates of cost for various portions shall be agreed upon by so many well known and experienced engineers, that these estimates shall be in such form as to aid a comparison with the estimates and plans presented to Congress, on Dec. 1, 1900, for a United States 21-foot ship canal from Lake Erie to Lake Ontario, and from Oswego, on Lake Ontario, to Albany, on the Hudson river, and that they shall command the confidence of the public and will enable the legislature and the people of the state for a full and unbiased judgment as to the desirability of building this great barge canal, the locks of which are specified by the act which ordered the survey to be 310 feet long, 28 feet wide, and 11 feet deep, with a capacity to pass two boats, each 150 feet in length, and 25 feet in width and 10 feet draft, with a cargo capacity of 1,000 tons each.

The suit of Patrick J. McMahon, president of the scoopers' union, against Daniel J. Keefe, of Chicago, president of the International Longshoremen's Association, for $10,000 damages for alleged slander, came before a sheriff's jury at Buffalo, last Thursday afternoon. Keefe had failed to put in an answer to McMahon's complaint, so McMahon's attorney, Thomas R. Sullivan, obtained from Justice White a writ of inquiry, directing the sheriff to impanel a jury and inquire into the amount of damages the plaintiff had suffered by reason of the alleged slander. The jury returned a verdict for McMahon for $3,500. McMahon's complaint alleged that in a letter written to Henry C. Barter, secretary of the International Longshoremen's Association, last spring, when the struggle over the leadership of the local scoopers was on, Keefe accused McMahon of being in a deal with certain contractors whereby McMahon would play the traitor to his union for a consideration. The complaint says Keefe made the same statement in effect in Duluth last July at a meeting of the International union. McMahon alleges he demanded a retraction of those statements and that Keefe refused to make it. McMahon says by reason of the alleged slanderous statements his reputation was grievously injured and he lost his position as president of the local union, which paid him $1,500 a year; also that former acquaintances who praised him when he won the victory over the obnoxious contract system of handling grain about a year ago, now pass him by without recognizing him.

It is expected now that the contracts for the movement of next year's coal will not be made until very late, and some suggestions have been made that it may be as late as the latter part of March before these are entered into. The reasons for this are the difference as to the price to be paid and obtained is great. Shippers believe it should be very low for next year, while the owners believe the reverse, and will fight to make it high. The contention will likely last a long while, and keep the work of making contracts back. The season just closed was a fruitful one for the broker, who made contracts and then moved most of his coal during the season for less than the market rates. The broker may be a factor in this year's rate by trying to boost it up to where it was last year or above, but the shippers have studied conditions pretty closely, and are watching that no advantage be taken of them. They are now calculating on the amount of tonnage applicable to lake movements next year, and what the normal increase in business would have to be to equal the increase in tonnage, and have to come out with the statement that there would have to be moved 23,000,000 tons of ore and a proportionate movement of other commodities to keep all the boats busy. As no one expects such a heavy business, all believe that an era of low rates will prevail. This is the opinion of the shippers themselves, who are accustomed to using black paint freely, but their figuring is borne out to some extent. They count, therefore, that with more boats than commerce rates will be low, hence they will wait until conditions develop, which will be late. The price of coal will also be a factor, in postponing the contracts.

DULUTH—SUPERIOR.

Special Correspondence to The Marine Record.

Navigation at Sault Ste. Marie closed December 12, 1900, the last lockage through the American canal having been made at 4:12 a. m. on that date.

Capt. Joseph Wood, aged 26, of the whaleback steamer Thos. Wilson, is the youngest master of a modern Great Lakes carrier. He is the son of Capt. Alex. Wood, and his home is in Duluth.

Navigation closed at Duluth December 13, 1900. The last ship to leave for the lower lakes was the steamer Maricopa, December 7, and the last to arrive was the steamer Isaak L. Ellwood, December 13. Navigation closed at Two Harbors, Minnesota, December 13, by the departure of the steamer Manola.

CHICAGO.

Special Correspondence to The Marine Record.

The Great Lakes Towing Co. towed the C. Lockwood, Wilbor, Bliss and Martin to their winter mooring docks on Saturday.

The receipts of lake and rail anthracite at Chicago are 610,000 tons less than last year, and the shipments show a decrease of 200,000 tons.

A survey was held last week by Capt. William Keith and William Saville, on the barge J. B. Wilbur, which was recently on fire, and had her cabin and stern badly burned.

Capts. William Smith and Charles McCarle and engineer E. McComskey will attend as delegates from L. P. T. A. No. Chicago, the meeting of the Grand lodge of the L. P. T. Buffalo, on January 16th.

The tug Frank R. Crane has been added to the fleet of tugs engaged in keeping the city water works crib free from ice. Owing to her large power for the size of the boat, it makes her of great value to the service.

The fishing steamer Richmond, when off Chicago fishing Saturday night, broke her crank pin while working on the ice, and became disabled, the fishing steamer Angler responded to her signal of distress, and after a risky journey succeeded in bringing her safe into port.

The pleasure steamer Ziyara, which has been used for experimental purposes during the past year, has had alterations made in her turbine engine, which threatens to rival some of the Eastern productions. Their claim at the present time is that it is more economical than the most modern slide valve engine.

The steamer Philip Minch, which was chartered and loaded clipped oats at 2¼ cents for winter storage and spring delivery, about two weeks ago, is the only grain-laden vessel in this port to January 1st. The steamers New Orleans, P. P. Pratt and Phœnix, which were chartered for oats about the same time as the Minch, have not yet received their cargoes.

At a meeting of the Shipmasters' Association, Chicago Branch, held December 26, 1900, at their hall in the Schlosser Building, 200 La Salle street, the following officers were elected for the ensuing year: Capt. James O. Wood, president; Capt. W. D. Hamilton, first vice-president; Capt. D. A. Curran, second vice-president; Capt. Wm. W. Shaw, treasurer; Capt. F. B. Higgie, secretary. Capt. Joseph White was initiated as a new member of the association.

The steamer George Dunbar, Capt. William Hudson, arrived here with lumber from Empire, Mich., Wednesday evening, Dec. 26th. She went on Racine Reef just before midnight of Christmas eve. When she went aground signals of distress were sounded by the captain, who, with his crew commenced to throw her deck load overboard to lighten her. Early Christmas morning the fish tug Bloedel and the captain and crew of the Racine life-saving station went to her assistance, and she was released and towed into Racine at 9 a. m. About 90,000 feet of lumber was jettisoned.

The first ocean freighter ever built in Chicago was launched Saturday afternoon from the yards of the Chicago Ship Building Company on the Calumet river. The new boat is 242 feet long and has a capacity of 2,500 tons. Her first cruise will be to Hamburg, Germany, laden with grain. The launching of the Northwestern, as the new boat was named, will complete the first installment of the largest contract ever entered into by the Chicago Ship Building Co. This contract calls for the building of eight boats—four for the ocean, and a like number to ply between the harbors of the Great Lakes—and stands for an expenditure of $2,000,000.

The first annual reception and ball of the L. T. P. A. No. 2, Chicago, held at the Medinah Temple Hall, December 19th, was one of the most successful and largest attended dances ever held at that hall. Many insurance and vessel agency men, shipmasters and the general marine trade gave it their patronage and presence. The grand march, which nearly 300 couples participated in, was led by Mr. and Mrs. Daniel Robertson, and about the same number also sat down to and enjoyed an excellent, well-served supper. The orchestra was A1. and the dancing could not be excelled. All the officers and members of the L. T. P. A. vied with each other in making this, their first annual ball, a great success, and they succeeded, beyond their anticipations.

At 3 o'clock Saturday afternoon Dec. 29th, the steel steamer Northwestern was launched from the Chicago Ship Building Co.'s shipyard at South Chicago. There was no christening ceremony, but a large flag bearing the name Northwestern told the story. The steamer's dimensions are 256 feet over all, 42 feet beam, 26½ feet molded depth. The engines are triple-expansion and will be placed on the stern. She is built for ocean service and will run between Chicago and European ports. Three more steamers to be called the Northeastern, Northtown and Northman, of the same dimensions as the Northwestern, are under construction at this shipyard, and will be completed by the opening of navigation. The four steamers are owned by the Northwestern Steamship Co. Elliott Norton, of New York, is president of the company; Chas. Counselman, of Chicago, treasurer; Frederick Purdee, of Chicago, traffic manager.

Admiralty—Service of Process—Following State Statute.—Service of monition in admiralty may be made under the provisions of a state statute regulating the mode of service in actions at law and in equity. Doe et al. vs. Springfield Boiler & Mfg. Co., 104 Fed. Rep. (U. S.) 684.

DETROIT.

Special Correspondence to the Marine Record.

The Kendall Marine Reporting Co., of Port Huron, state that they have received information from Southampton, on the east shore of Lake Huron, that there was about seventy-five sticks of sawed lumber and some 3-inch planks piled up along the shore in that vicinity. Evidently there is an owner to this flotsam, and he has but to put in his claim to secure it.

The Lake Carriers' executive committee was in session on Saturday, the seamen's federation was taken up. R. F. Smith, of the Pennsylvania railroad, who is familiar with the subject, met with the committee and furnished much valuable information. A plan will be mapped out and the committee will leave the matter in shape for the annual meeting at Detroit. At the last annual meeting the general opinion was expressed that J. G. Keith, of Chicago, would be the next president, and as far as members are concerned there has been no shift, although very little attention has been given the matter.

As a result of the meeting of the owners of lumber carrying boats held in Bay City, Dec. 19, a circular letter has been prepared and mailed to all owners of lumber vessels on the lakes, calling upon them to meet at the Hotel Normandie, in Detroit, Jan. 17, for the purpose of reaching an understanding with the National Longshoremen's Association regarding the price to be paid for loading and unloading vessels the coming season. A vessel owner in this connection stated as follows: "We have become tired running our boats at a loss, and the movement now under way is to protect ourselves and make it an object to do business. A $2 rate on lumber from Duluth, with 60 cents an hour to the longshoremen means a loss to us every trip. We are willing to share our profits with the longshoremen and want them to treat us reasonably. We will favor a sliding scale, paying so much per hour for loading and unloading, and in case of increase or decrease in freight rate to raise or lower the pay of the longshoremen. We will also insist upon having our captains free to hire and discharge men as they see fit. If we cannot make money carrying lumber, we might as well lay our boats up. If the longshoremen's union is not willing to grant the concessions, we must of necessity make a fight against it."

Lieut. Casey B. Morgan, executive officer of the U. S. S. Michigan, opened a naval recruiting office in rooms 4 and 5 of the old Federal building, on Monday, December 31, and will keep the office open five days, from 9 a. m. to 4 p. m. each day. He has just returned from a trip to Cleveland, Sandusky and Toledo. He spent five days in each place and enlisted 90 men, all of whom have been sent to Norfolk for duty. The present enlistment is in five grades, seamen, ordinary seamen, landsmen (for training) and machinists of the first and second class. The navy department is especially desirous of getting young Americans between 18 and 25 years old, who are physically sound and who can read and write English, to enlist as landsmen for training. These recruits, on enlistment, are sent to one of the Atlantic coast receiving ships. By special law they are allowed free what is allowed to no other grade, an outfit of uniform and clothing amounting to $45 in value. They are then sent to sea for six months, where they are carefully instructed in the various sea-faring duties, and after this are assigned to the regular cruising ships. They are advanced in grade as they show aptitude. Machinists are also much desired. Fully 100 will be required in the Philippines this year. Candidates for the mechanic grades must be machinists by trade or licensed marine engineers, with a fair knowledge of the use of repair tools, and between 21 and 35 years old. The pay is $40 and $55 per month. Lieut. Morgan enlisted ten machinists in the lower cities and hopes to get more here, now that lake navigation is closed. All the recruits will be sent, by January 5, to the steamer Franklin, Norfolk, Va., at the government's expense.

The Detroit Free Press says: Down in a private office of Parker Bros., at the foot of Griswold street, stands a long table heaped up with blue prints and pencil and ink drawings. It made its appearance a short time ago, but it is affording plenty of work for B. W. Parker, manager of the White Star line of steamers. Every day he may be seen bending over this table, examining and comparing the drawings, adding here and rubbing out there. The solution of this puzzle is that he is at work on drawings of a passenger and freight steamer that is to be added, some time, to the line. When this craft will be built is a question nobody can answer, for the shipbuilding trust and every steel plant on the lakes are jammed full with work, many of the yards having contracts for boats, the keels of which cannot be laid until next spring. It is probable that could the trust promise to lay the keel within one to four months it would get the contract immediately. It is impossible to learn any particulars concerning this craft, but she is probably the fast propeller which the directors of the line have been considering since last spring. She is to be larger and faster han the Arundell, capable of making 17 to 18 miles an hour when pushed, easily handled, economical in fuel consumption, with freight capacity for about 500 to 700 tons. Within two years' time the arrangement with the Cole estate for the charter of its steamers Arundell and Idlewild will expire, and the White Star Line undoubtedly intends to have a smart boat all ready to step in and do the spring and fall work between this port and Port Huron and Toledo, now attended to by those steamers. It is the ambition of the White Star people to a have a monopoly of the route, and there is no doubt they will be fully prepared when the time comes to meet any opposition from the Cole people or any others that may take it into their heads they would like to cater to the dear public which is now a part of the "good will" of the White Star Line. It is Parker's custom to put his and his fellow directors' ideas as to what the line wants on paper, and the whole is then handed over to Frank Kirby, who, if he considers them practical, embodies them in his drawings of the new boat.

In the following is given the letter now being sent to all owners of lumber-carrying vessels, urging them to attend the meeting of lumber carriers called for the morning of January 17, at the Hotel Normandie, this city. It is evident that the carriers are very much in earnest in the proposed attempt to secure a reduction in the outrageous charges imposed on them all of the 1900 season by the lumber loaders at the Lake Superior and Lake Huron ports, particularly the former. Few, if any, of the lake lumber carriers made a profit on the season, owing to the fact that the charges prevailed the entire season, the loaders absolutely refusing to abate one cent., though well knowing that the carrying rates were at an extremely low figure. In the early part, when the $2 figure prevailed, these charges caused a loss to every boat engaged. Large numbers laid up or went into ore and grain carrying. Toward the end, with the carrying rate up to $2.50 and $2 75, a short time, they made a slight profit, but it did not go far toward helping out. It is plain that had the loading charges been materially lower, the larger part of the fleet would have stuck to the trade, and have possibly done better than carrying small loads of ore and grain and putting up with delays to which they are never subjected in the lumber trade. This condition would also have given the loaders much more work; in fact, might have kept them employed all the season, whereas there was a considerable falling off in the number of cargoes to be handled. The unloaders at the lower lakes were still harder hit, as their wages were much lower. It is probable that at the coming meeting the carriers will propose some kind of a plan by which the shipper will deal with the loaders, paying all charges for handling the lumber to the rail of the vessel, and the vessel owner paying for the stowage of the lumber aboard; or the shipper may even be asked to assume the entire expense and responsibility of the handling done up to the piling on board the boat. This plan would embrace the unloading as well, the dealers and shippers at Toledo, Buffalo, Cleveland, the Tonawandas, and other receiving points paying all charges for transferring the stuff from the piles aboard ship to the wharf. The carrying rates would accordingly be reduced to allow the carrier only a rate—a reasonable one—for the actual carriage of the cargo. Here is the letter: "Dear Sir:—It is earnestly desired and very essential that you or your representative meet with the representatives of the lumber carriers of the Great Lakes to formulate plans to obviate the arbitrary measures and extortionate charges to which this class of vessels have heretofore been subjected. 'Tis well to say that owners of the above-mentioned vessels are disgusted with the treatment they received for the season just closed and demand a change. Don't fail to be present and notify others to be in Detroit at the Hotel Normandie, at 10 a. m., January 17, 1901. Come. C. H. WEEKS, Secretary."

Representative Grosvenor's bill regulating the running of motor launches should be given careful attention by the people of the lakes and rivers who own power boats. Mr. Grosvenor's aim is to have the engineers of even the smallest power boat licensed as is the engineer of large craft. The law now provides for licensed engineers for boats above fifteen tons burden, where they are propelled by gas, fluid, naphtha or electric motors. The bill introduced by Mr. Grosvenor amends the law by striking out "of about fifteen tons burden." This leaves the measure in such shape that every power boat, large or small, used for the conveyance of passengers or freight, shall be subject to laws almost as stringent as those relating to steam vessels.

The cruiser Dorothea, which is coming to guard American interests on the waters of the Great Lakes, is one of the stanchest little warships of the auxiliary navy. She is a "converted" cruiser—one of the ships bought by the government during the war with Spain. She was used at that time to patrol the Florida coast, and was useful to Admiral Sampson in the vicinity of Key West. She used to be a fast steel-built private yacht of 594 tons displacement, with fine engines and a speed of fourteen knots per hour. She is armed with twenty modern guns and torpedo tubes, all of which will be welcome to the members of the naval militia for artillery practice. Unlike the old Michigan, which she will replace, the Dorothea is capable of long cruises, and is in other ways a far more desirable vessel than the antiquated war craft used on Lake Michigan in the past.

Since early fall the owners of lumber carrying craft have been complaining loudly against the lumber shovers, and especially those at the upper lake docks. The statement made most often was that the longshoremen were so exacting that it was impossible for the owners to make any money at the rates obtained from the shippers. The complaints were so loud and were made so often that it has all resulted in a determination to hold a meeting of all of the lumber carriers and have their grievances thoroughly aired. Secretary Barter, of the Longshoremen's Union, has taken the wind out of the sails of some of the owners, by saying that he wishes to meet with the conference and discuss the situation with them. If there are any abuses, and he supposes that the complaint has been well founded, he is anxious to right the wrongs. Mr. Barter has written to all of the owners urging that the conference be not postponed, as he is anxious to have the matters aired.

MODERN METHODS OF DEEP SEA SOUNDING AND DREDGING.

One of the latest developed and most interesting studies of science is that of determining the depth, shape and characteristics of the ocean's bottom. Probably no branch of science has made such enormous strides in the last twenty-five years as this, and certainly none have made discoveries of more importance. The reason for this is that the instruments in use before 1872 were so crude that no results of any accuracy could be obtained.

In 1872, Sir William Thompson first devised a machine for sounding in which wire was used instead of the stout cord line used exclusively before that time. The wire in use then, as also now, was steel piano-forte wire, weighing 14½ pounds to the nautical mile. The great advantage in sounding with wire is in its very great strength, its smoothness of surface and small weight. Deep sea soundings were made formerly with a hemp cord 8-10 of an inch in circumference, weighted with about 300 pounds of lead, and taking from three to four times as long to lower the apparatus as to-day.

The machine invented by Sir William Thompson was entirely successful and became the basis upon which our modern sounding machine was constructed, and finished to a state bordering on perfection by Lieutenant-Commander Sigsbee, of the United States Navy, and Maine fame. This machine is located on the side of the vessel, and is so constructed that the wire passes over a reel, connected to two registers, and having a circumference of exactly one fathom. The wire is weighted by a sixty-pound cannon ball which detaches itself as soon as the bottom is reached and thus makes the reeling in of the wire very easy. Also attached to the wire, and passing through a hole bored in the cannon-ball, is a brass cylinder called a sounding cylinder, which brings up specimens of the ocean's bottom. A thermometer is also sometimes attached to the wire in order to get the temperature of the water at the bottom. As soon as the ball strikes the bottom the wire stops and in less than a second the momentum of the reel is checked by the friction rope attached to it. Then the registers are read, indicating the amount of wire paid out, and the wire reeled in by steam. It takes from 50 to 75 seconds per 100 fathoms to lower and from 50 to 90 seconds per 100 fathoms to reel in the apparatus.

The main advantages of this machine are the quick passage of the wire to the bottom, the exact measurement of the distance, and the rapid reeling-in of the wire while a vessel is steaming ahead.

The shape of the ocean's bottom has been pretty accurately worked out by sounding in this manner every few miles along the parallels from continent to continent, and thus the mountains, valleys, plains, plateaus and deep holes have been located. The deepest hole, so far, is near the Feejee Islands, and is 30,930 feet deep, which is 1,928 feet deeper than the height of the highest mountain in the world. The average depth of the ocean is 14,300 feet, while the average height of the continent is 1,800 feet.

The modern apparatus used in dredging is rather simple when compared with the sounding machine, and was, until about 1885, the same old form of dredge used in the last century. It consisted of a rectangular frame of flattened iron, to the side of which was fastened a bag of netting. In 1885 it was found impossible to collect the delicate forms of animal life in this dredge, as the dragging of the bag over the rough bottoms crushed and spoiled them; so a frame work was added and covered over with canvas, and now the dredge resembles a rectangular block, open at one end. Attached to the end of the dredge is an iron bar on which are fastened large swabs of rope tails. These tails trail behind the dredge and in them become entangled all kinds of star-fish. When the bottom is rough or very rocky, or of uneven coral, the tangles of rope tails are frequently used alone. This dredge is capable of being dragged over the bottoms and of gathering the most delicate specimens without crushing, but it is useless when the bottom is composed of ooze or fine mud, which becomes finer in proportion to the distance from land.

A dredge, called a trawl, is used on bottoms consisting of fine mud, and is composed of two eliptical-shaped iron runners, on which is fastened a bag of netting about 15 feet long. These runners permit the trawl to be dragged over the mud at a rate of from two to three and a half miles per hour without sinking in and filling up with it.

Formerly hemp rope was used for dredging, causing the trawl to be loaded down with weights, in order to sink a rope strong enough to bring back the combined weight of the trawl, its contents and the weights sent down with it. This difficulty is now overcome by the use of steel rope 1⅛ inches in circumference, which does away with the necessity of weighting the trawl, besides adding much to the speed in lowering and hoisting.

The work of investigating the ocean's bottom may be said to have only commenced, there being yet a great deal more to be learned; but all the large countries are interested in it and are rapidly developing and finding out new facts about its physiography. The United States has been for some time, and is now, engaged in the work, and it can truthfully be said that the United States Survey and Fish Commission have been first in recent developments in this field. Closely connected with the United States expeditions for several years have been Professors Addison E. Verrill and Sidney I. Smith of the Sheffield Scientific School and they have done much towards the advancement of this branch of science.—The Yale Scientific Monthly.

BUFFALO COAL SHIPMENTS.

Following is the amount of coal shipped by lake from Buffalo during the seasons of 1900 and 1899, as given by the Custom House reports in net tons:

	1900.	1899.
Chicago	710,890	1,068,569
Duluth-Superior	368,765	706,723
Milwaukee	413,260	665,931
Toledo	50,345	43,517
Waukegan	44,220	37,550
Lake Linden	28,165	19,790
Manitowoc	27,680	20,270
Green Bay	24,645	36,502
Racine	22,405	34,065
Gladstone	17,800	33,571
Sheboygan	16,165	3,300
Marquette	12,680	11,645
Sault	8,665	10,971
Hancock	7,450	7,250
Ashland	7,370	7,500
Bay City	6,065	5,251
Depere	4 890	.....
Houghton	4,050	3,000
Portage	3,475	3,675
Kenosha	3,375	7,475
Port Huron	3,200	6,260
Port Washington	1,750	.....
Marinette	1,600	1,685
Washburn	1,100	7,800
Alpena	1,065	200
Menominee	850	4,175
Marine City	675	800
Port Clinton	400	.....
Cape Vincent	105	.....
Manistique	.....	1,685
Cheboygan	.....	1,830
Escanaba	.....	1,500
Muskegon	.....	1,350
St. Joseph	.....	680
St. Clair	.....	540
Kelley Island	.....	525
Sandusky	.....	500
Algonac	.....	500
Mackinaw	.....	400
Grand Marais	.....	300
Canadian ports	32,455	54,155
Total	1,825,760	2,815,165

The Canadian distribution in 1900 was 20,745 tons to Fort William, 3,770 tons to Port Colborne, 2,400 tons to Depot Harbor, 1,170 to Amherstburg, 1,010 tons to Parry Sound, 940 tons to Port Arthur, 700 tons to Garden Island, 650 tons to Sarnia, 480 tons to Port Dover, 450 tons to Syng Inlet, and 240 tons to Port Burwell. As these cargoes pay duty they are exact, while the cargoes to American ports are not.

VESSEL TRANSFERS.

The following vessel transfers have been recorded at the Grand Haven custom office recently: Schooner Experiment, sold by John Watt, of Ludington, to Eliza J. Ludwig, of same place, consideration $300; schooner Anna E. Morse, sold by Albert A. Potter, of St. Joseph, to Mary A. Potter, same place, consideration $600; schooner Grayling, sold by Edwin Austin, of Cheboygan, to H. E. Todd, same place, consideration $70; schooner Volunteer, sold by William H. Stiles, of Traverse City, to M. C. Snow, same place, consideration $170; schooner Wanderer, sold by Thurston Banister, Bayport, to Dan Seavy, of Frankfort, consideration $600; scow Essex, sold by George C. Abbott, of Northport, to Sylvester S. Eubor, same place, consideration $250; steamer Onekema, sold by John U. Emery, of Old Mission, to Edwin M. Emery, same place, consideration $1,000; tug T. W. Ferry, sold by William Habel, of St. Joe, to Arthur Habel, same place, consideration $900.

ECONOMY IN BUILDING MERCHANT SHIPS.

During the discussion of papers read by the Society of Naval Architects and Marine Engineers, Lewis Nixson said: "Many people say, in view of the fact that we are building men-of-war in this country at prices which compare very favorably with prices received abroad, that we ought to do the same thing in merchant ships. The conditions are very different. Men-of-war are appropriated for, and while sometimes the appropriation is not that which would build it, at the same time there is an appropriation, and the shipyards can be organized for the purpose of building them. When we are in a such a position that we can build a million tons of merchant ships in a year, we will then have the demand which will enable us to so arrange the building of merchant ships that we can build with reasonable economy, and I have no doubt in the world that by that time we shall be able not only to meet the price of the foreigner, but to come under it. But in order to bring about that condition it is obsolutely necessary that there should be a demand for ships which we have not now, and until we can get that it is absurd to talk of building merchant ships as cheaply as they can build them abroad. In one of the largest ship yards in this country there are five slips, each capable of building a Campania; and recently on one was a tug, on another a battleship, on another a ferry boat, on another a yacht, and on another a revenue cutter. It is absolutely impossible to practice economies under such circumstances and build the ships so that they would compare favorably in cost with ships built abroad. However, there is some promise in the future, and if we can get down the cost of the raw material, there is not any question in the world that with the demand that seems to be coming we shall be able to meet and go under the price of the foreigner. Until we have that demand, and we cannot get it without appropriate legislation, it is absolutely impossible to build merchant ships here as cheaply as they can be built abroad."

THE HEAVENS IN JANUARY.

Astronomical data for January, 1901, furnished to the MARINE RECORD by the Washburn observatory: Mercury is inconspicuous as a morning star the early part of the month and passes through superior conjunction January 21, to become an evening star. Venus is still the bright morning star, but is drawing nearer the sun, apparently, and slowly diminishing in brilliancy. The red planet Mars is conspicuous in the eastern sky in the later evening and reaches the meridian in the early hours of the morning. Jupiter and Saturn may now be seen ascending the south-eastern sky in the morning, before the bright dawn appears, the former planet rising the earlier and much the brighter.

The times of sunrise and sunset at Milwaukee for the month are as follows:

	SUNRISE.	SUNSET.
Jan. 1	7:24	4:17
Jan. 11	7:23	4:37
Jan. 21	7:18	4:49
Jan. 31	7:09	5:02

The times of the moon's phases are:

Full moon	Jan. 4,	6:14 p. m.
Third quarter	Jan. 12,	2:38 p. m.
New Moon	Jan. 20,	8:36 a. m.
First quarter	Jan. 27,	3:52 a. m

The principal fixed stars visible during the month are: In the evening hours, near the meridian, Aldebaran and Capella; to the east, the bright stars of the constellation Orion and Sirius, Procyon, Castor and Pollux.

VISIBLE SUPPLY OF GRAIN.

As compiled for THE MARINE RECORD, by George F. Stone, Secretary Chicago Board of Trade.

CITIES WHERE STORED.	WHEAT. Bushels.	CORN. Bushels.	OATS. Bushels.	RYE. Bushels.	BARLEY Bushels.
Buffalo	3,407,000	13,000	52,000	75,000	1,493,000
" afloat	1,181,000	.....	162,000	.....	.....
Chicago	11,659,000	2,092,000	2,938,000	619,000	223,000
Detroit	480,000	208,000	35,000	45,000	16,000
Duluth	1,347,000	711,000	700,000	260,000	142,000
Fort William, Ont.	1,276,000	.....	.....	.....	.....
Milwaukee	977,000	327,000	272,000	5,000	26,000
Port Arthur, Ont.	250,000	.....	.....	.....	.....
Toledo	530,000	1,545,000	776,000	12,000	.....
Toronto	90,000	.....	2,000	.....	179,000
On Canals	.....	.....	.....	.....	.....
On Lakes	.....	.....	.....	.....	.....
On Miss. River	24,000	95,000	.....	.....	.....
Grand Total	61,408,000	9,053,000	9,393,000	1,262,000	2,662,000
Corresponding Date, 1899	58,291,000	11,598,000	5,694,000	1,397,000	2,456,000
Increase	.....	1,489,000	36,000	.....	.....
Decrease	65,000	.....	.....	6,000	197,000

While the stock of grain at lake ports only is here given, the total shows the figures for the entire country except the Pacific Slope.

TREASURY DECISIONS.

TONNAGE ADMEASUREMENT OF VESSELS.

Certain errors in admeasurement should be corrected.

TREASURY DEPARTMENT, BUREAU OF NAVIGATION, WASHINGTON, D. C., December 19, 1900.

SIR: This office is in receipt of your report, dated the 5th instant, relating to an application by the owners of the screw steamer D. B. Dearborn, for the issue of marine documents.

The vessel was built at Noank, Conn., and was there admeasured and temporarily documented, being afterward brought to New York, where she belongs. The tonnage specified in her temporary certificate, issued at Stonington, Conn., is 111.01 tons gross and 58.30 net; but the admeasurement at your port gives a gross tonnage of 107 89 and a net tonnage of 73.87 tons. The certificate shows that at Stonington deductions were made for master and crew space, and for steering gear, not authorized, the purpose of the space as regards room occupied by master and crew not having been carved over the doorway and on a beam, and no steering gear space, subject to admeasurement, having been found. The gross tonnage reported included galley and pilot house, exempt from admeasurement, and the capacity of the pilot house was deducted erroneously as a space for steering gear.

You are authorized to readmeasure the vessel and insert her correct tonnage in a new certificate.

Respectfully,

E. T. CHAMBERLAIN, Commissioner.

Collector of Customs, New York, N. Y.

NEW INTERNATIONAL CODE OF SIGNALS.

TREASURY DEPARTMENT, BUREAU OF NAVIGATION, Washingtou, D. C., December 19, 1900.

To collectors of customs, masters, and owners of ships, etc.:

The new International Code of Signals will come into use on January 1, 1901. From January 1, 1901, until January 1, 1902, the new edition of the code and the old edition will be used concurrently, the use of the new edition being denoted by the hoisting of the code pennant with the fly tied to the halyards, having above it a black ball or shape resembling a ball. After January 1, 1902, the new edition alone will be used, and its distinguishing sign will thenceforward be the code pennant hoisted in the ordinary way.

Pages from IX to XVI of the Code List of Vessels of the United States, 1900, prepared in this Bureau, contain illustrations of signals according to the old code and will remain effective until January 1, 1902.

Illustrations of the new signals are given below, together with the rules for signals of distress.

It is suggested that a copy of this circular be inserted in the copy of the Code List heretofore forwarded for the use of seagoing vessels. The next Code List issued by the Bureau will embody illustrations of the New International Code.

EUGENE T. CHAMBERLAIN, Commissioner.

Approved:

O. L. SPAULDING, Acting Secretary.

[Illustrations of the new signals will be found in the circular of the Bureau of Navigation, bearing above number and date.]

ST. LAWRENCE SYSTEM OF CANALS.

A recent dispatch from Ottawa states that inquiries frequently reach the department of railways and canals, especially from Cleveland, Buffalo, Duluth and other inland shipping points, with respect to the Canadian 14 foot channels; and there appears to be an impression at some of the shipping points that there is not really a genuine 14 foot channel to the seaboard, but that it is shallow in places, and vessels loaded well down in the 14 foot mark are liable to ground in some parts of the channel.

This impression is declared to be erroneous. Vessels drawing 14 feet can go quite safely from any of the inland lake ports to Montreal without the slightest danger of grounding, if the new channel is strictly adhered to, and only such pilots are employed as have studied this channel and are thoroughly conversant with it.

Cases have occured where vessels have grounded, but it has been found the cause has been either that the pilot was out of his course or that the captain of the vessel had not gone down the canal, but preferred to take his chances outside in the river.

This year's experience has shown that a very thorough overhauling of the pilots is necessary. Few of them have taken the trouble to make themselves familiar with the buoying of the new channel, and they blunder into the old channel, and then run their vessels ashore. Then the new channel gets blamed instead of the pilot.

THE CONNERS MONTREAL PROJECT.

Following the outcry raised by the Trade Bulletin, the Canadian Journal of Commerce, the other great Montreal commercial and financial publication, makes a strong attack on the Conners syndicate for its delay in carrying on its elevator building. It contends that frankness, above all things, is due Montreal by Mr. Conners. If he is unable to carry out his project then it is time that the harbor commissioners were advised of that fact. If the Conners scheme is to fall through then it is better that the Montreal public should know the fact at once. The Journal of Commerce declares that many Canadians have all along believed that Mr. Conners' scheme was proposed only for the purpose of preventing the development of the St. Lawrence route. If this was so, says the Journal, the sooner the deception is swept away the better.

The Journal of Commerce claims that appearances at present do not predict that the Conners agreement will be carried out in good faith. No company has yet been organized nor capital realized for the work. The work has been allowed to drag along at an unreasonable pace and has now stopped.

"Will it ever be resumed?" asks the Journal. "Two years have now been allowed to pass and no practical results have followed. Something better than this was expected of Mr. Conners and his friends when they were granted privileges in Montreal harbor which they themselves valued at $1,500,000."

The editorial gives voice to the general anxiety at present experienced by Montreal and claims that the conditions in the agreement, which were supposed to be very stringent, are not so very binding after all upon Mr. Conners and his friends.

LAID UP AT TONAWANDA.

The vessels laid up at Tonawanda are as follows: Steamers, Seattle, P. H. Birckhead, W. L. Wetmore, Garden City, John B. Ketcham, United Lumberman, Canisteo, F. R. Buell, Charles H. Street, C. H. Green, E. B. Ward, W. H. Stevens, S. S. Wilhelm, Santa Maria, Edward Smith No. 2, C. F. Curtis and Veronica; schooners, Tracy Bronson, Commodore, John C. King, Michael Corey, C. H. Burton, C. B. Jones, Dolly Morden, H. M. Stanley, Unadilla, Charles Wall, Genoa, Jeremiah Godfrey, J. B. Lozen, Selden E. Marvin, Nirvana, Galatea, Iron City, J. R. Edwards, Minnie E. Orton, William J. Youngs, Isabelle Reed, Nelson C. Holland, T. S. Fassett, Amboy, Moravia, B. L. Pennington, whaleback No. 101, Elvaina, Fulton, Eleanor and S. B. Pomeroy, Hattie Wells, Mineral State and A. Stewart.

AFFECTED BY CAR SHORTAGE.

The cross lake boat lines have been forced to refuse all freight in the line of grain and grain products, on accouut of a shortage of freight cars on the east side of Lake Michigan. Since the lake and rail and wild boats have been discharging all their full cargoes of grain at Buffalo there has been a tremendous demand for freight cars in that part of the country. As a result all Michigan & Western cars which have gone to New York are being used by the down east railway lines, causing a famine in Michigan. There are still enough cars in the Middle West to take care of the class freight, but the flour trade can secure practically nothing to carry its product east. The warehouses on both sides of the lake are filled with flour and other grain products. While other business is good the boat lines have hardly enough to keep their boats busy in the class freight carrying. The Pere Marquette, for instance, has three boats, the F. & P. M. Nos. 2, 3 and 4, available for service, but only two of those are running. The warehouses are so filled on the other side of the lake that there is room for no more flour. After a time, when the Buffalo grain has nearly all been moved, the demands on the Michigan railway lines that their cars be sent back to them will be met, and there will be some lively shipping on the other side of the lake which will probably be paralleled by the lake lines.

THE commission for the promotion of Sweden's foreign commerce proposes the establishment of regular steamer lines to the United States and South America, particularly the United States, whence imports are rapidly growing, while Swedish exports are unimportant. Sweden at present receives American goods chiefly through London, Hamburg and Antwerp. The commission proposes bounties for the two lines to the United States and South America, and also sets forth that bountied lines from Sweden to Russia are desirable.

NOTES.

THE Pan-American Steamship Co., a new corporation, capital $5,000,000, was incorporated at Trenton, N. J., on December 22. It proposes to operate steamship lines between all ports of the world. Of the capital, $2,000,000 is preferred 6 per cent. cumulative stock. The incorporators are: Henry W. O. Edye, Herbert Barber, Gen. Edward C. O'Brien, C. A. Jones and George B. Hopkins.

C. D. MEYER, of Cleveland, has designed a diving machine in which he says it is possible to descend 1,000 feet under water without the least discomfort to the operator. The apparatus is fourteen feet high and from five to seven feet in diameter. It weighs 3,000 pounds out of water. The shell has been tested to withstand a pressure of 2,500 pounds to the square inch, which is said to be the pressure under water at a depth of 5,000 feet. It has already been given a trial in the water of Lake Huron.

SENATOR HANNA, discussiug the ship subsidy bill recently in the Senate, said: "There is no one thing in the building up of our great navy that is more important as an auxiliary than to have a merchant marine of vessels of modern type, of sufficient speed and strength, built under this bill, which are made under the law a part of the United States Navy whenever the secretary, in his judgment, sees fit to call them into action. It is a well known fact that at the beginning of the Spanish war, while we had a navy equal, even surpassing, that of our adversary, we had no ships, excepting those of the American line, that could be used as pickets. We had not enough ships to transport our men to Cuba or Porto Rico. We were obliged to avail ourselves of nearly every vessel plying in the coastwise trade, and we bought hundreds of tons of vessel room from foreigners."

THE November issue of the Journal of the American Society of Naval Engineers is just issued, and, as usual, contains a varied and interesting table of contents. The leading paper is a well written description of "The Contract Trial of the United States Sea-going Battleship Alabama," by Lieut. Harry Hall, U. S. N. A test of Babcock & Wilcox boiler for the Cincinnati comes next, followed by a valuable paper on "Coal Consumption, Tests of the Steamship John W. Gates," by Lieut. B. C. Bryan, U. S. N. Lieut. Comdr. W. F. Worthington, U. S. N., continues his valuable paper on the corrosion of boiler tubes in the U. S. Navy. This paper presents some new facts and considerable data, but does not throw much light upon the cause for the rapid deterioration of tubes on some ships while others are comparatively free from this operation. "Inertia Stress of Elastic Gears" is a highly scientific paper, but too abstruse for general application. Lieut. J. K. Robinson, U. S. N., contributes a full description of the speed trials of the battleship Wisconsin on the California coast last fall. An interesting account of the full speed trials of the Russian cruiser Variag concludes the number, and this paper contains much valuable information, but it lacks the signature required to give it authority.

IT IS claimed that the Navy Yard at Washington has the largest pair of scales in the country. This weighing machine, according to the Washington Post, can outweigh the largest railroad scales by fifty tons, and when it is considered that its results must be accurate to a pound, the perfection reached is little less than marvelous. All the large ordnance manufactured for the Navy is weighed upon this machine, and two years of usage have failed to dull its sensitive nature. From the surface of the ground it has the look of an ordinary hay scales, the delicate mechanism being invisible to the eye. The most intricate parts are in a broad pit below the ground. The platform of the machine is forty-eight feet long and twelve feet wide. Beneath the machinery is a cement base, laid upon long piles. Much of the fine and peculiarly sensitive apparatus was specially manufactured for this machine, which differs in its parts from any other scales in the country. In order to illustrate the accuracy of the counterpoise, a half brick was placed on the platform. A long brass lever in the reading box along the edge of the platform was then consulted, and the reading showed that the weight of the brick bat was just one pound. It can give the exact weight of anything from a pound of feathers to a pair of 13-inch guns, and do it accurately. A 13-inch gun weighs about fifty-five tons, and two of these monsters reclining on a 48-foot car truck, can be weighed on this machine without taxing its full capacity. The complete structure is said to be the finest of its kind in the country, and a model and marvel of mechanism, and it is of American manufacture throughout.

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CLEVELAND, O., JANUARY 3, 1901.

STEAMBOAT INSPECTION SERVICE.

The expenses of the service were, for salaries, $298,715.59; contingent expenses, $50,808.33; decrease from previous year, $36.57. Traveling and mileage expenses were $41,-896.65, the increase is attributable to the fact that 546 more vessels were inspected than in 1899. The number of vessels inspected and certificated was 9,253, with a total tonnage of 4,507,648, as against 8,707 vessel inspected and certificated in 1899, with a total tonnage of 3,705,607, showing an increase in tonnage in the present fiscal year of 802,041 tons over that inspected in 1899. The number of certificates issued to foreign passenger steamers included in the above was 345, with a gross tonnage of 1,233,846. Motor vessels inspected were 80, with a gross tonnage of 4,516. Sail vessels inspected numbered 520 with a tonnage of 534,761, and domestic steam vessels inspected were 8,308, with a total tonnage of 2,734,525. The number of officers in the service holding five year licenses, is estimated to be about 43,000, of which 6,445 received their licenses during the present fiscal year, the remainder having been licensed in 1897, 1898 and 1899. The number of applicants for masters', mates' and pilots' licenses was 2,886. The number of boiler plates examined by assistant inspectors at the mills, under the act of Congress approved January 22, 1894, was 5,424, of which 483 were rejected for various defects, and 4,941 were accepted, showing an increase of 1,136 plates inspected over the previous fiscal year.

IN FAVOR OF THE SUBSIDY MEASURE.

Theodore Search, president of the National Association of Manufacturers, Philadelghia, has sent a circular to the members of the organization urging united effort to help pass the ship subsidy bill now pending in the United States Senate. The circular says in part:

The attacks upon the measure, which seem to desire main support from persons interested in the operation of ships under foreign flags, are in the main uncandid, misleading and in many instances absolutely unfounded upon demonstrated facts. The proposition to buy ships in the cheapest market would be a death blow to our shipbuilding industries. To undertake by discriminating duties to build up American export trade would be equally futile, as these bounties only apply to imports. A bounty upon exports is now admitted by its former most earnest advocates to be a delusion and a snare, which would simply result in adding profits to middlemen, to foreign carriers or to foreign consumers, without possible benefit to manufacturer or farmer. Hence, believing that the measure in question represents the best results of careful labor by conscientious and careful men, both in and out of Congress, I feel firmly convinced that whatever power and influence our association may have in shapping the legislation of this country should now be brought into requisition.

GREAT STEAMSHIP COMPANIES.

The modern tendency of concentration in all lines of industries extends also to the carrying trade of the world, thirty of the largest steamship companies in the different European countries control 1,580 steamers of over 5,600,000 gross tons with an annual carrying capacity of about 21,000,000 tons, or one-eighth of the total carrying power of all the fleets, both sail and steam, in the known world. The value of this great fleet is nearly $225,000,000. The two greatest steamship companies, in point of tonnage, are the Hamburg-American Line, with ninety steamers aggregating 515,628 tons, and the North German Lloyds with 105 steamers aggregating 470,200 tons. The British-India and Peninsula & Oriental lines following with 107 steamers of 311,267 tons, and 57 steamers of 297,657 tons respectively. The Messageris Maritimes owns 62 steamers of 242,680 tons, and the Nipon Yusen Kaisha (Japanese) 69 steamers of 208,238 tons. The White Star Line and Cunard's 24 steamers of 195,716 tons, and 28 steamers of 128,160 tons respectively. It will undonbtedly surprise our readers to learn that the company having the largest number of steam vessels is neither British, German, French nor American, but Danish. The Forenede Damfskibo Selskab, of Copenhagen, Denmark, has 116 steamers of 124,670 tons. Thirty of the largest steamship companies in the world control one-fourth of the world's steam shipping and the modern tendency is towards a still closer centralization.

LONDON LLOYD'S

There is a philanthropic side to the corporation of Lloyd's. Whenever they hear through any of their vast army of agents of any deed of heroism on the deep, they immediately communicate with the hero or heroine and commemorate the deed by striking off a medal, which is presented to the one who has earned it. The committee of Lloyd's has a standing advertisement in "Lloyd's Shipping Index," requiring all captains who may call at British ports to communicate any information concerning any wreck or vessel in distress, or making a long passage, to Lloyd's agent at the first port of call. The value of such intelligence is great and it may be sufficient to remind captains how often such news may be the means of conveying to the wives and families of officers and crews the assurance of the safety of thier husbands or fathers.

At an office on the ground floor of the Royal exchange, Lloyd answers, free of charge, all sorts of enquiries from the wives, other relatives, or the sweethearts, of sailors anxious about the cruise of poor Jack, or desirous to find out where his ship may be. There is a list kept by which the whereabouts of any British vessel may be found in a twinkling. An important book is the captain's register, containing the biography of more than 30,000 commanders in the merchant service of Great Britain. Another volume, not high in favor with the underwriters is called the "Black Book," in which missing and wrecked ships is recorded. Lloyd's publishes what is practically a list of all the merchant vessels of the world measuring 100 tons or more. It is called "Lloyd's Register of British and Foreign Shipping," and it tells all about every seagoing craft worth mentioning, giving her tonnage, dimensions and the name of her captain and owner.—Ainslee's Magazine.

A NOVELTY IN ANCHORS.

The design of anchor with which we are all so familiar has with but slight variation done service from time immemorial, and it seems strange that at this late day there should be any marked change proposed in the manner of making a vessel fast. A very radical change has been proposed, however, in the Langston mooring device which was recently given a public test in New York harbor. Its form is that of a saucer-like disk, on the concave side of which are forged lugs to hold the shackles and rings for attaching the chain. Between the lugs is a hole an inch and a half in diameter, and it is by the direction of a strong stream through this hole, against the river bottom, on which the convex surface of the saucer rests, that the device is sunk to any desired depth. These moorings may be made of any required size, but it is not contemplated that any conditions could ever demand a disk of greater magnitude than 24 inches in diameter, and none larger than that has been made. The ten-inch disk, which was the size used at the test, could almost be stored away in an overcoat pocket. The fluke anchors, which are the kind commonly in use, weigh thousands of pounds.

The tests made were eminently satisfactory. The disk can be sunk in a few minutes to a depth which will hold any vessel of ordinary size, while if it is given little more time in the sinking operation, it can be sent to a depth from which it could not be pulled by the greatest of the marine monsters. When it is desired to pull the disk in, it is done in the same manner in which it was sunk.—The Patent Record.

LORAIN WINTER FLEET.

According to present advices the fleet of lake craft in winter quarters at Lorain is made up as follows:

Steamers—Malletoa, Maricopa, Victory, O. M. Poe, George Stevenson, Sir William Fairbairn, John Ericsson, Sir Henry Bessemer, Empire State, Badger State, Samuel F. B. Morse, Alex. McDougall, A. B. Wolvin, Harvard, Louisiana, Neptune, Crescent City, William Edenborn, Douglass Houghton, Choctaw.

Schooners—Constitution, Manda, Manila, Marsala, Santiago, Twin Sisters, Ahira Cobb, Thomas Quayle, Loyalty, Agnes, Gen. Franz Sigel, Selkirk, Three Brothers, barge, 126.

Tugs—Cascade, Chris. Grover, Oscar C. Stedman, Susie B., Sprudel, O. J. True, W. H. Moore, Daisy Ciscoe, Gull, Charles E. Bolton.

NOTES.

COLE & KUHLS, the manufacturers of elastic seam composition, foot of 24th street, Brooklyn, N. Y., met with the best of results in the past year, as they have held the old customers and gained many prominent firms among the ship and yacht builders, and also steamship companies. Not only has the composition been a success in seams, etc., but The Pennsylvania R. R. Co. has, after a thorough trial of the composition, adopted same for their sky-lights, from which they have had much trouble in keeping them tight.

THE Chicago Record stoutly maintains that boats can be constructed in Chicago much cheaper than on the coast. In speaking of this matter the Record says: "That ocean vessels are being constructed at the Chicago shipyards should be taken as evidence that the business has real and lasting possibilities. Probably ships can be built more cheaply in Chicago than at any of the Atlantic coast shipyards from the fact that the materials required in shipbuilding can be assembled at Chicago more cheaply than at the coast cities. For example, the cheapest iron ore in the world is to be had in the Michigan mines, which are easily accessible to Chicago. The coal and coke needful to manipulate iron ore can be brought to Chicago at less expense than the iron ore can be taken to the coal and coke, and in addition, other elements entering into ship construction, including labor, can be had quite cheaply, if not at less cost than in the coast cities. That this should be so is not unreasonable, because the cost of living in the center of the greatest food-producing area of the world enables workmen to live more cheaply and to work better for the same wages than workmen elsewhere."

THE State Department has issued a statement compiled from consular reports, showing that the lumber exports from one Canadian port alone last year—Montreal—decreased about 50,000,000 feet. The marked feature in the Canadian export lumber trade has been the steady advance in values and the firmness with which stocks have been held. A careful investigation made by the Canadian Lumberman goes to show that logging operatives have been unable to obtain a sufficient number of employes. Wages and food have advanced, and the chances are that the output of logs will be materially reduced. The Lumberman adds that the increase in wages of woodsmen in the United States has amounted to nearly 85 per cent. during the past four years. It is believed that there has been an almost equal advance in Canada. The increase cannot be disregarded by manufacturers, who must of necessity secure for their product a price sufficient to cover the higher cost of production. In addition to a steady growing home demand in Canada for lumber the export trade of Canadian furniture and wood implements is increasing. It is not improbable that the United States and Great Britain will take from Canada next year fully as much, if not more, lumber than in the season now closing.

Insurance—Marine Policy.—Where the violation of a condition in a marine policy is relied on as a defence to an action thereon, the burden is on the insurer to show that the condition was violated in some substantial and material respect. Porter vs. Traders' Insurance Co., of Chicago, 58 N. E. Rep. (N. Y.) 641.

SUMMARY OF FORTHCOMING ANNUAL REPORT TO LEGISLATURE.

STATE ENGINEER, MEMBER OF MANY BOARDS AND IN CHARGE OF MUCH IMPORTANT WORK IN NEW YORK STATE.

Edward A. Bond has now been State Engineer and Surveyor of New York for two years and was recently re-elected to continue in office for another two years. The State Engineer is ex-officio member of six different boards which represent many and varied interests; of them the more important ones are the Canal Board, the State Board of Health and the Forest Preserve Board.

The Canal Board takes action upon all works of maintenance and repair of the canals, and has also, during the past two years, considered in detail and settled 46 of the 74 contracts made in 1896-97 under the nine million work, and has considered, preparatory to settlement nearly all the others. The action of the Canal Board upon these contracts has saved the state a large amount of money.

The State Board of Health has considered an unusual number of proposed sewerage systems and water supply systems for different towns in the state, all of which have been referred to the State Engineer for his report as to the capacity and sanitary character of the proposed systems.

The Forest Preserve Board is charged with the duty of the purchase of lands for the state and the perfection of the title of such lands.

One of the principal duties of the State Engineer during the past year has been the making of a survey and plans and estimates for a barge canal across the state, for which survey $200,000 was appropriated on April 12th, 1900. In order that the results of this survey be available in February, 1901, it has been necessary that the great amount of work to be done should be perfectly systematized and that the many parties in the field should work to the best possible advantage in order that their results should not only be accurate and should command public confidence, but should also be worked out and ready for consideration by the Legislature at its next session. This survey is completed and the results are in progress of preparation and will be presented to Legislature in February, 1901. The report will be exhaustive and will include the results of studies by specialists in all the different features involved in the design of a modern canal; it being the intention of the State Engineer that the plans for this work will be so thoroughly considered that the estimates of cost for its various portions shall be agreed upon by so many well-known and experienced engineers, that these estimates shall be in such form as to aid a comparison with the estimates and plans just presented to Congress on December 1st, 1900, for a U. S. 21-foot ship-canal from Lake Erie to Lake Ontario, and from Oswego on Lake Ontario to Albany on the Hudson river, and that they shall command the confidence of the public and will enable the Legislature and the people of the state to form a full and unbiased judgment as to the desirability of building this great barge canal, the locks of which are specified by the act which ordered the survey to be 310 feet long, 28 feet wide and 11 feet deep with a capacity to pass two boats each 150 feet in length and 25 feet in width and 10 feet draft with a cargo capacity of 1,000 tons each.

The topographical survey of the state has been in progress in co-operation with the United States. The results are published in sheets 12 inches by 18 inches, showing about 12 miles by 18 miles, so that 240 sheets will cover the state; of these, 102 are completed and published; 15 sheets are mapped and in the hands of the engravers; 26 are surveyed and in the hands of the draughtsmen, and of the remaining 97, three-quarters are triangulated and are ready to be surveyed.

State Engineer Bond has also during the past year begun a system of measurement of the flow in various streams of the state, which system will be of the greatest value in examining sources of water-supplies and systems of power development. The results of these investigations will be submitted to the Legislature in a separate report.

In addition to these various features, the State Engineer has given special attention to the matter of the boundary lines of the state, and to certain long disputed county boundary lines, which have been established and settled by him to the satisfaction of all parties concerned. A full description is given of all the boundaries of the state.

The State Engineer has also had charge of the survey, design and construction of good roads under the Higbie-Armstrong law of 1898; under which law the sum of $250,000 has been appropriated by the state during the three years it has been in force.

Twenty-three roads have thus been built, located in 12 counties, and aggregating 53½ miles. In addition to this, 131 petitions have been received from 27 counties for an aggregate of 800 miles, of which surveys and estimates have been made, or are in progress for 80 roads in 23 counties, aggregating 406 miles and showing an average estimated, or actual cost of $7,625 per mile. Those roads which have been completed have given unqualified satisfaction to the people who have used them and have helped to pay for them, and in nearly every case the immediate result has been the presentation of petitions for the extension of the road so built.

During 1899 there was built in one of the counties, a gravel road which has given entire satisfaction and which cost much less than a macadam road would have cost. There have since been many calls from different parts of the state for roads of this or a similar character, and it has been decided to recommend these cheaper roads where heavy traffic does not make it necessary to build the high-class and more costly macadam roads, and thus to enable those counties who have as yet made no petitions, to avail themselves of the "good roads" law.

Improved roads are wanted by the people in all parts of the state, and the omission of 34 counties to take action under the Higbie-Armstrong law of 1898 has been because of the great cost of building the crushed-stone macadam roads, which are usually meant when "good roads" are mentioned.

Some counties can afford to pay one-half of the cost of the first-class crushed-rock roads which are built by state aid at $7,000 to $9,000 per mile, but many other counties equally want "improved" roads, which are neither so good nor so costly as the macadam roads.

The provisions of the Higbie-Armstrong law are such that the State Engineer is enabled to select for the improvement of any highway, a telford, macadam or gravel roadway, or other suitable construction, taking into consideration the climate, soil and materials to be had in that vicinity, and the extent and nature of the traffic likely to be upon the highway; specifying in his judgment the kind of road which a wise economy demands.

Under this provision, the surveys and estimates which have been made in 1899 and 1900, have in every case, where the conditions make it desirable, provided for the use of local stone or local gravel; but the State Engineer now decides to carry this action still further and to make merely "improved" roads for such counties or towns as do not want macadam roads.

This will be done in such way that little of the work will have been wasted if it is later desired to form a good macadam road on the same highway.

The existing roadway will be properly cleared of sod and stones, and properly graded with the ditches and culverts necessary for perfect drainage, and the natural material forming the present road be properly formed and "crowned" and rolled, as now is done to form a subgrade for a macadam road.

If the natural soil is light sand, as is often the case, this sand will be covered with six inches of clay or shale, if such material is within reach, and the surface will then be rolled until it is hard and firm.

If the natural soil is argillaceous sand or soft clay or loam which make deep mud when wet, such material will be covered with gravel if it can be found in the vicinity and can be used without too great cost.

If the natural soil is a mixture of gravel and loam, as is frequently the case, this material itself will form a fair roadway when crowned and ditched and rolled.

In any such case, an "improved" road will thus be made which will be vastly better than any former condition of such a highway and which will drain itself much quicker, and be in every way much better, than the existing roadway. It will not be a macadam road, but it will be an "improved" road and its total cost will be less than one-third of the cost of a macadam road, or say, $2,000 to $3,000 per mile.

If the local authorities should later desire to make a macadam road on such an improved highway, the grading and ditching and forming which have been described, will be so much work already done towards forming such a high-grade macadam road.

By this means it is hoped to enable many of the rural counties of the state to have the benefit of state aid for the improvement of their highways.

FLOTSAM JETSAM AND LAGAN.

During the past season Milwaukee only received 77,000 tons of ore. In 1899 the receipts were 112,800 tons.

A dispatch from Glasgow says that the Scotch iron and steel manufacturers are said to be considering the policy of closing their works during January, in view of the scarcity of orders and the high price of fuel.

Dock No. 1 of the C. Reiss Coal Co., at Sheboygan, one of the largest docks on Lake Michigan, was destroyed by fire Tuesday. The loss is estimated at $60,000 and is covered by insurance. The dock will be rebuilt at once.

Clyde shipbuilders recently placed orders for 150,000 tons of plates in the United States at a saving of $250,000. The depression in Scotch steel and malleable iron trades is acute. Fourteen furnaces will be damped at the end of the year. The steel works are talking of closing indefinitely.

The firm of Nye, Jenks & Co., operating the 1,250,000-bushel elevator at Duluth and smaller houses at Washburn and Milwaukee, is to build a 1,000,000-bushel house at Chicago. The Chicago company is called the Rialto Elevator Company, and the structure will be of steel and cement and fireproof. It will cost over $400,000.

Capt. Martin D. Wright, one of the pioneers of Ashtabula, died at his home last Friday morning, aged eighty years. He sailed vessels for the firm of Hubbard & Hulburt for many years and was well known by all old lake men. Upon retiring from sailing he took up shipyard work and superintended the construction of the first docks built at Ashtabula.

Capt. Boynton, of the ice crusher Algomah, says the boat was laid up because since the delivery of the big consignments of hay, traffic has fallen off so much that trips were only made at a loss. The line has not met with the encouragement deserved. A part of the time the boat made trips at a loss, and, in fact, made no money on the route. The Ann Arbor road failed to make any contract with the company to keep the channel open this winter, and as the prospects for any heavy traffic were not flattering the owners decided to place the boat in winter quarters at Menominee.

The Providence capstans have long been regarded as the standard all over the world. The American Ship Windlass Co., Providence, R. I., have just furnished two of these capstans for the steel sailing ship Comet, building by Wm. Hamilton & Co., Port Glasgow, Scotland, for Montgomery & Co., London, and they have two more of these capstans to ship to these same builders for steel sailing ship No. 161, to come out in May for the same owners. They have also lately shipped a capstan, ordered by cable, to Liverpool, for the barkentine Enterprise. In this country they are used almost exclusively by people who are looking for the best.

"The Men of the Merchant Service," by Frank T. Bullen, author of "The Cruise of the Cachalot," "The Log of a Sea-Waif," etc., and published by Frederick A. Stokes & Co., 5 and 7 East 16th street, New York, is an interesting and instructive book for 'longshore readers. The author presents the life of a sailor from a new point of view and sets forth the duties required, qualifications, etc., of the various members of a ship's company, and his aim has been to make it entertaining by giving a plentiful supply of anecdotes. As the merchant marine service is a subject that is engaging the minds of Americans at the present time, this work is timely and valuable. The price is $1.50.

C. C. Dennett, sailmaker, Bath, Me., has just closed a contract with the Eastern Ship Building Co., at Groton, Conn., for making a new set of sails for the large, bark-rigged, steam yacht Wacouta, owned by J. J. Hill of the Great Northern railroad. Mr. Hill is having her placed in readiness at Groton to leave the first of February for a trip around the world. The canvas for the sails will be made expressly for the work, which will be the best that a sailmaker can accomplish. It will take 5,000 yards of duck and all the material used in connection with the work will be the finest manufactured. Mr. Dennett will begin work shortly in his sail loft on the new sails for the Wacouta.

Lloyd's Register of Shipping, in order to extend its influence and functions in the United States, is appointing additional and non-exclusive surveyors to represent the Society in the principal shipbuilding centres there. The representative selected for Philadelphia is Mr. David McAuslan, who has been with Lloyd's for over ten years; most of the time at the head office in London. Previous to entering the services of the Society, he was employed in the yard of Messrs. Denny and Bros., of Dumbarton, where he received a thorough and practical theoretical training. Mr. George Stanbury, assistant-chief-surveyor at the head office in London, is also proceeding to America temporarily, in order to initiate the surveyors now being sent into their new spheres of duty.

President Martin, of the Northern Grain Co., is credited with having given out the information that construction work will consist of a number of steel tanks at Manitowoc for the storage of grain. The increase of storage capacity is figured on at 1,500,000 bushels, and this will require at least fifteen tanks. The location of the proposed additions has not been made public, but it is thought to be east of the elevator A. The move undoubtedly means the abandonment of the scheme to erect a third elevator as storage room for grain to be handled by the present machinery seems to be the main requirement. The elevators of the company at Manitowoc are now so crowded with grain, it is said, that hundreds of cars headed that way occupy side tracks all along the lines of railways entering the city.

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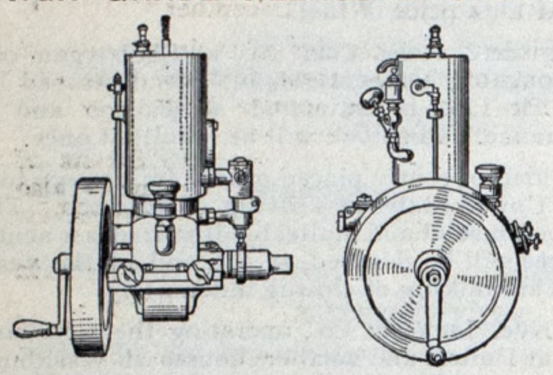

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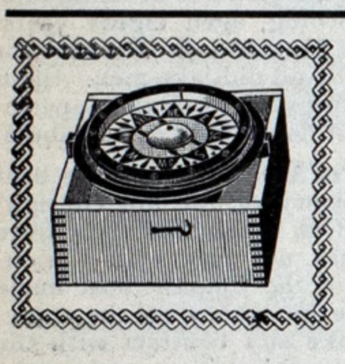

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THE CRAMP SHIP BUILDING CO.

Charles H. Cramp, head of the Cramp Shipbuilding Company, appeared before the Industrial Commission a few days ago and gave some very interesting testimony. He stated that from 1710 to the present time Philadelphia had led the country in ship building.

Mr. Farquhar of the commission wanted to know why it is that American money does not seek investment in trans-Atlantic and Pacific trade.

"The first reason," Mr. Cramp replied, "is that it does not pay and the second is that the people have not been educated in the business. A person cannot make money unless he has been educated to the use of it."

Mr. Cramp said the merchant marine could not be rehabilitated without a subsidy. He thought the subsidy in the Hanna bill was "about right." He said also that there seemed to be some apprehension that only the big lines, notably the International Navigation Company, would secure the bulk of the subsidy. This idea he asserted was erroneous because the large freight ships would secure a considerable portion of it.

Regarding the opposition to the subsidy bill, Mr. Cramp said it came from numerous sources, one of them being certain western railroads, which, he said, "have looted the United States Treasury through grants of land." He believed that most of this opposition was the result of spite and jealousy. As to the opportunities at present offered the American ship owner, Mr. Cramp said that they were never better.

"The trans-Atlantic industry of England has been ruined by the South African war," he continued. "The British government took nearly all the merchant ships for transports. This has made an enormous demand for vessels. There is our chance, but we must be assisted."

Another reason why this country should have more ships, Mr. Cramp said, is the steadily decreasing coal supply of Europe. Eventually, he said, all Europe will come to this country for coal.

"Mr. Cramp," said Commissioner Kennedy, "is there any truth in the rumor as sent from London of a combination between your firm and the English firm of Vickers' Sons & Maxim?"

In answer Mr. Cramp read a published interview on the subject which he gave to the newspapers while in Washington and supplemented it with this statement:

"These stories have arisen from the fact that I have been endeavoring to enlarge our plant in the hope of building a warship complete. I have asked people here and people abroad to help us increase the capacity of our works. Under the law Vickers' Sons & Maxim cannot combine with us. The American control of the plant will not be abolished so long as I am connected with the company."

Mr. Cramp then explained that in building a warship it was necessary to secure material from various sources and his object had been if possible to bring these different industries together in the one establishment. Under the old method by which the hull of a ship was built in one place, the engines in another, and other portions in still other shops, a trans-Atlantic vessel would cost double the amount than when all these industries were consolidated. Continuing Mr. Cramp said:

"Great Britain's sources of wealth in her ship building is in the vessels she builds for other countries. The ship building interests there are assisted by the government either directly or indirectly. I want to compete with England."

Mr. Cramp spoke of the enormous profit on armor plate. In building warships for Russia he said, his company was compelled to pay the full rate of $600 a ton to Carnegie for armor. This, he said, was one-third the cost of the ship.

"If I could get the profit on armor plate," declared Mr. Cramp, "I would build a warship at cost."

"At what price could armor plate be furnished to the government and give the producer a fair profit?" inquired Mr. Kennedy.

"I do not know," was the response. "I would not like to say."

Mr. Cramp said an enlarged plant would enable him to build the greatest merchant ships. It required the same machinery to make shafting for merchant vessels as for gun and armor forgings. The steel melting plant and armor plant were also similar.

ST. LAWRENCE MARINE INSURANCE.

Montreal will next season have a new insurance company which will obviate the necessity of vessels leaving the port of Montreal without insurance protection, as was the case in several instances during the past season. The name of the new company is the St. Lawrence Lloyds and its aim, as set forth in its notice of application, is to carry on an ocean and inland marine insurance business, with the right to maintain and navigate ice-breaking and wreck-relieving steamers on the St. Lawrence river. Louis Boyer, solicitor, or Dandurand, Brodeur & Boyer, Montreal, is the applicant.

The company will be composed of several well known Montreal capitalists, whose names are not yet divulged. It proposes to insure Canadian shipping at lower rates than at present prevailing, so as to enable all vessels leaving the port in the fall to get insured.

The formation of this company has an additional significance from the statement made by A. G. Blair, Minister of Railways, at the recent Hays banquet at Montreal, when he said amidst loud cheers that no English insurance monoply could hinder the progress of the St. Lawrence route. The backbone of the company is the Clerque syndicate of Sault Ste. Marie, who, with Montreal capitalists, form the company. The capital is $5,000,000.

BIDS FOR THE NEW NAVY.

Armored cruisers—Union Iron Works, San Francisco. one sheathed and coppered, $3,800,000; one without sheathing, $3,750,000; another under the same conditions, $3,750,000, making two in all.

William Cramp & Sons, Philadelphia, Pa.—One sheathed but uncoppered, $3,890,000; one unsheathed, $3,780,000.

Newport News Ship Building and Drydock Company—One sheathed and coppered, $3,885,000; one without sheathing, $3,775,000; this for two ships.

Moran Bros. & Co., Seattle, Wash.—One sheathed and coppered, $4,132,000, or two at $4,008,000 each; one without sheathing, $3,963,000, or two at $3,844,000 each.

Fore River Ship Building and Locomotive Works, Quincy, Mass.—One sheathed and coppered, $3,975,000, or two at $3,950,000 each; without sheating, one for $3,800,000, or two at $3,775,000 each.

The same bid also is made for two more ships at same price and under the same conditions, under the act of 1900. The preceding bidders, Moran & Bros. and the Newport News company, made similar propositions.

John Dialogue & Son, Camden, N. J.—One unsheathed, $3,825,000.

Another, under the act of 1900, at the same price; Risdon Iron and Locomotive Works, San Francisco, one without sheathing, $4,075,000.

THE BATTLESHIPS.

Cramp & Sons—One sheathed and coppered, $3,600,000.

Newport News Company—One sheathed and coppered, $3,593,000; one unsheathed, $3,540,000.

Fore River Works—One for $3,580,000, or two for $3,555,000 each, all sheathed and coppered. Without sheathing one for $3,430,000, or two for $3,405,000 each.

A bid also is submitted for two more at the same prices under the act of 1900.

John H. Dialogue & Son—One sheathed and coppered, $3,400,000; one without sheathing $3,290,000.

Another at the same figure under the act of 1900.

Bath Iron Works—One sheathed and coppered, $3,590,000.

New York Ship Building Company—One sheathed and coppered, $4,200,000, or two at $4,175,000 each. Without sheathing, one for $4,100,000, or two for $4,075,000 each. This firm offers to reduce the time limit of completion six months.

Moran Bros. & Co., Seattle, Wash.—One sheathed and coppered, $3,865,000, or two at $3,749,000 each. Without sheathing, one for $3,697,000, or two for $3,586,000 each.

Bids also are made for two more at the same price under the act of 1900. This firm also offers to reduce the time limit about six months.

Union Iron Works—One unsheathed, $3,460,000.

A naval board will consider the bids and report upon them. The acts of Congress limit the cost of the cruisers to $3,600,000 each, and of the battleships to $4,250,000 for the sheathed and $4,000,000 for the unsheathed.

IMPORTANT DISCOVERY IN NAVAL ARCHITECTURE.

The second annual Congress of the German Institution of Naval Architects has just been concluded at Charlottenburg. In a report of the proceedings, the Berlin correspondent of the London Post directs special attention to a paper by Herr Johann Schutte, on the stern lines of the Kaiser Wilhelm der Grosse in relation to the speed performance of that remarkable vessel. It has long been the dream of naval architects to assist the design of the "underwater body" of ships by experimental evidence gained from a wooden model in a large tank, but to most of the ship designers of the present day this system is associated with the failure of the Russian Imperial yacht Livadia, for in the case of that vessel the use of models in a tank led to expectations of a speed which were not realized. Froude's theory of the resistance of ships underlies the investigations regarding the Kaiser Wilhelm der Grosse models as it did the models in the earlier attempts to deal with the subject. The novelty is in the highly-refined methods of ascertaining the pull required to drag the model at given speeds, and above all, in obtaining "by the use of models on two different scales," the breaking-up of the total resistance into its two component parts—namely, wavemaking and skin friction. Models of different character in regard to the stern lines, were found to exhibit striking differences in the total resistance with displacements practically identical, and the remarkable conclusion seemed justified that with one set of lines it would take 2,000 horse-power more to get 22½ knots than with another set of stern lines. The subject is one of great technical difficulty, but it will suffice here to say that the speeds expected under the pressure of various amounts of horse-power have been realized in the deep sea performances of the Kaiser Wilhelm der Grosse.

BRITISH FOREIGN TRADE.

"One of the last works of the late Michael G. Mulhall was the preparation of a careful and detailed analysis of the conditions, tendencies and prospects of British foreign trade. It presented," said the New York Tribune, "a most impressive view of the magnitude of that trade, together with some particularly significant considerations alike for those who think Great Britain's industrial and commercial supremacy is doomed and for those who think that it is secure for unmeasured future time. Imports of merchandise into Great Britain, including both food for domestic consumption and material for manufacturing and re-exportation, are steadily increasing at a great rate. The increase has been five-fold in the last forty years, or 12½ per cent. a year. At the present time imported merchandise averages more than a ton a year for each inhabitant of the United Kingdom. This includes something more than half of the food supply of the United Kingdom, the cost of such imports amounting to about £5, $24.33, a year for each inhabitant. The cost of imported food is, however, decreasing, having fallen 20 per cent. in the last twenty years and being now £20 10s., or $60.83 a ton. Most of this food, Mr. Mulhall reckoned, could be produced in the United Kingdom, but at much greater cost, and therefore to the detriment of the working classes."

NOTICE TO MARINERS.

LIGHT-HOUSE ESTABLISHMENT,
OFFICE OF THE LIGHT-HOUSE INSPECTOR, 9TH DIST.,
CHICAGO, ILL., December 29, 1900.

CLOSING OF LIGHTS AND FOG-SIGNALS FOR THE WINTER OF 1900-1901.—Notice is hereby given that the following lights have been closed for winter of 1900-1901: St. Helena light-station; Charlevoix light-station; Bailey Harbor light-station; Seul Choix Pointe light and steam fog-signal station, and Eagle Bluff light-station.

By order of the Light-House Board.

F. M. SYMONDS, Commander, U. S. Navy,
Inspector 9th L. H. District.

TREASURY DEPARTMENT,
OFFICE OF THE LIGHT-HOUSE BOARD,
WASHINGTON, D. C., December 26, 1900.

KENOSHA (SOUTHPORT) LIGHT STATION. Notice is hereby given that, on or about January 25, 1901, the characteristic of the light at this station, westerly side of Lake Michigan, will be changed from fixed white, varied by a white flash every 45 seconds, to flashing white every 15 seconds. No other change will be made. The light will be extinguished from January 10 to 25, 1901, in order to make the change.

By order of the Light House Board:

FRANCIS J. HIGGINSON,
Rear Admiral, U. S. Navy, Chairman.

DOMINION OF CANADA—ONTARIO.

RED LIGHT ON GOVERNMENT WHARF AT SAULT STE. MARIE DISCONTINUED.—The red light heretofore maintained on a mast on the southern part of the Government wharf at Sault Ste. Marie, River St. Mary, District of Algoma, Ontario, has been discontinued, and should be removed from the Canadian list of lights and fog signals.

A white electric arc light is now maintained on the wharf, near its outer end, to light it, but is not considered a guide to vessels.

CHANGE IN POSITION OF THE CANADIAN CANAL LOWER ENTRANCE RANGE LIGHTS.—The mast from which the front light of the range leading to the lower entrance of the Canadian canal at Sault Ste. Marie is shown has been moved from the Lake Superior Power Co.'s wharf, a distance of 935 feet N. W. ¾ N. to the mainland near the shore, in the same alignment. The light is elevated 59 feet above the ordinary summer level of the river and is shown from a mast 55 feet high. There is a diamond, or lozenge-shaped target, painted white, on the mast immediately below the lantern, for a day beacon.

The back range light is on higher land, in the town, 980 feet N. W. ¾ N. from the front light. It is elevated 74 feet above the water, and is shown from a lantern on a mast 67 feet high, carrying a target similar to that on the front mast. The lights are fixed red, shown from incandescent electric lamps, and should be visible 3 miles in the line of range. In other respects the range is unchanged.

HEIGHT OF VIDAL SHOAL PLATFORM BUOY.—The light, shown from the superstructure of the red platform buoy maintained on Vidal shoal, is elevated 8 feet above the water instead of 6 feet, as stated in No. 1407 of the Canadian list of lights and fog signals, 1900.

DECREASE IN DEPTH IN RIVER ST. CLAIR.—The master of the steamer Boston reports that on 19th November, 1900, while bound down the St. Clair river, his vessel struck on the north end of the shoal south of the Middle Ground, opposite St. Clair, Michigan, from which the red buoy on the south end of the Middle Ground bears N. 45° W. true (N. W. mag.), distant 250 yards. He found but 14 feet 6 inches at this point.

F. GOURDEAU,
Deputy Minister of Marine and Fisheries.

Department of Marine and Fisheries,
Ottawa, Canada, 18th December, 1900.

POSITIONS IN THE LIGHT-HOUSE SERVICE.

LIGHT-HOUSE ESTABLISHMENT,
OFFICE OF THE LIGHT-HOUSE ENGINEER, 9TH DISTRICT,
CUSTOM HOUSE, MILWAUKEE, WIS., December 27, 1900.

Notice is hereby given that vacancies exist in the list of eligibles for positions of master, mate, first engineer and second engineer in the light-house service in this district, which includes Lake Michigan, Green Bay, and tributary waters lying west of a line drawn across the Straits of Mackinac at Mackinac Point, Michigan. Vacancies also exist in the list of eligibles for position of superintendent in the light house service in this district.

One position will require a machinist who understands the construction and repair of boilers and machinery.

The other positions will reqnire a general knowledge of building construction, qualities of material, and ability to handle working force.

Persons who wish to apply for the foregoing positions should obtain proper blank forms of application from this office, either in person or by mail, and after filling them out return them to this office.

Applicants need not appear in person.

Thirty days from the date of this notice, all applications received will be examined, the applicants graded according to merits, and a list of those eligible for appointment sent to the Light-House Board.

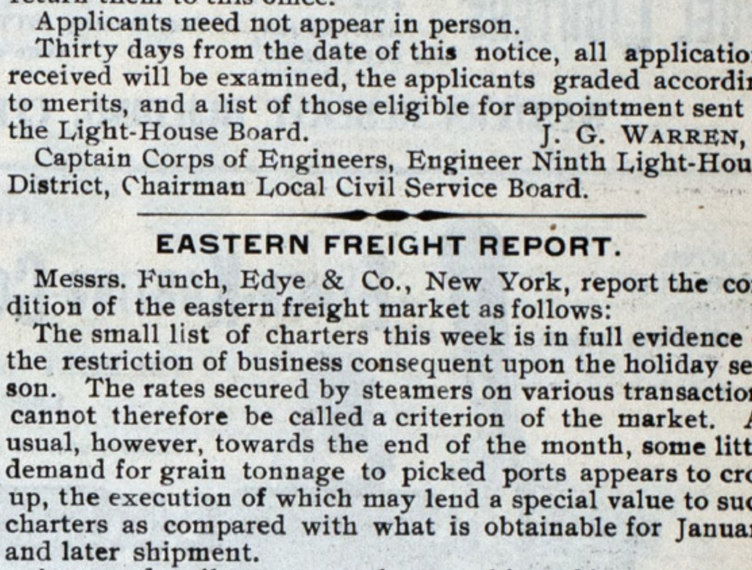
J. G. WARREN,
Captain Corps of Engineers, Engineer Ninth Light-House District, Chairman Local Civil Service Board.

EASTERN FREIGHT REPORT.

Messrs. Funch, Edye & Co., New York, report the condition of the eastern freight market as follows:

The small list of charters this week is in full evidence of the restriction of business consequent upon the holiday season. The rates secured by steamers on various transactions cannot therefore be called a criterion of the market. As usual, however, towards the end of the month, some little demand for grain tonnage to picked ports appears to crop up, the execution of which may lend a special value to such charters as compared with what is obtainable for January and later shipment.

As regards sail tonnage we have nothing of interest to add to the few charters reported. The market's close for the year is firm, but quiet.



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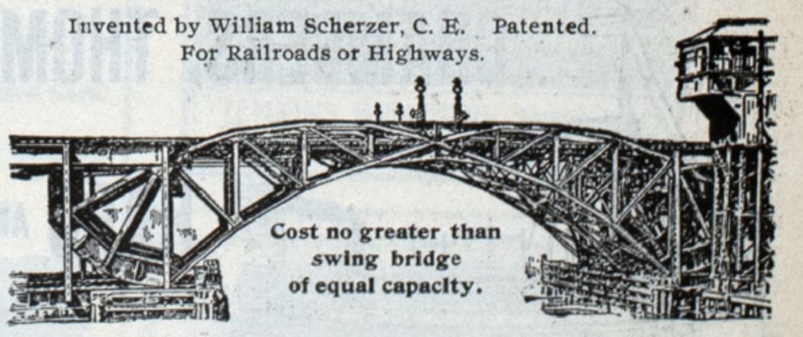

Vessel owners should urge the adoption of these bridges. The 8-track Scherzer Bridge over the Chicago Drainage Canal is the largest movable bridge in the world. A number in successful operation, and several in process of construction.
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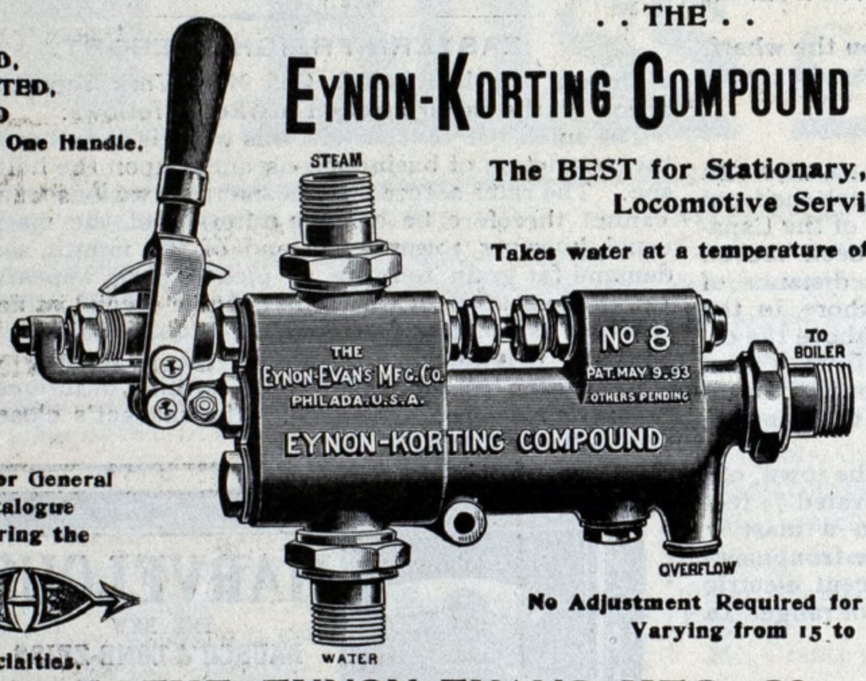

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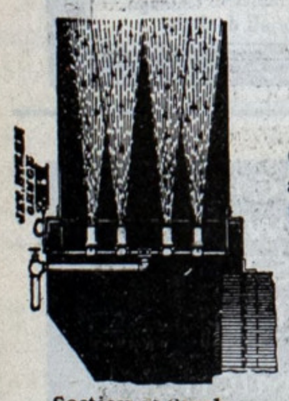

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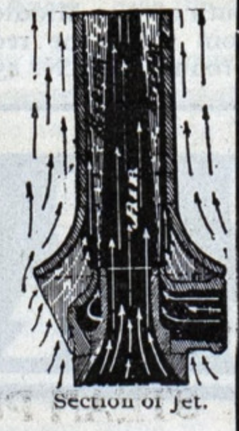

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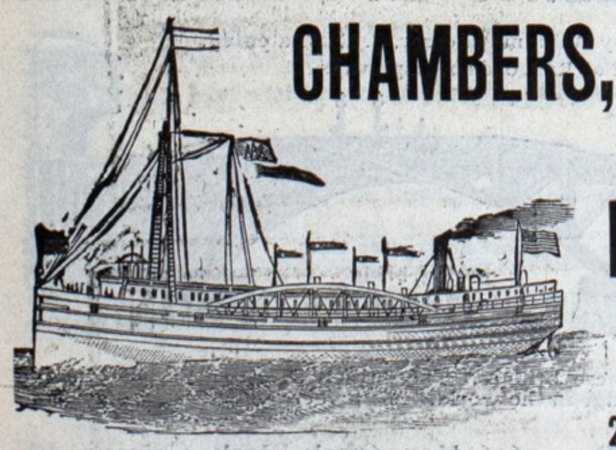

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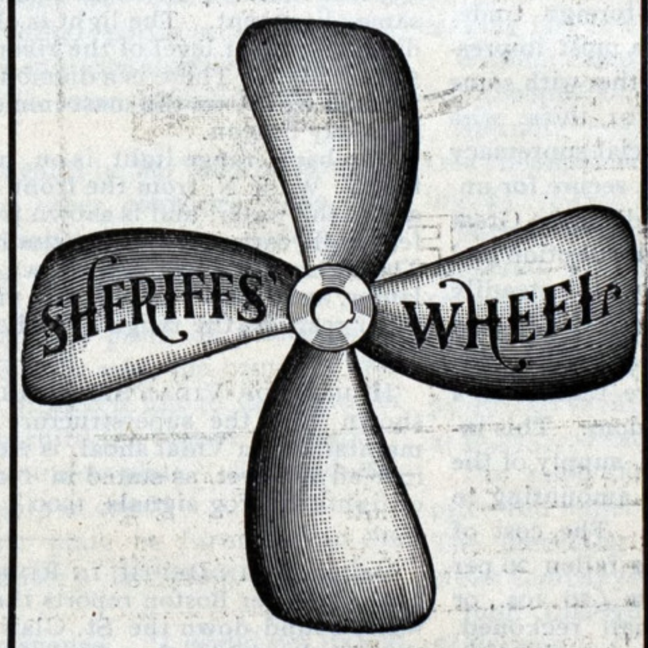

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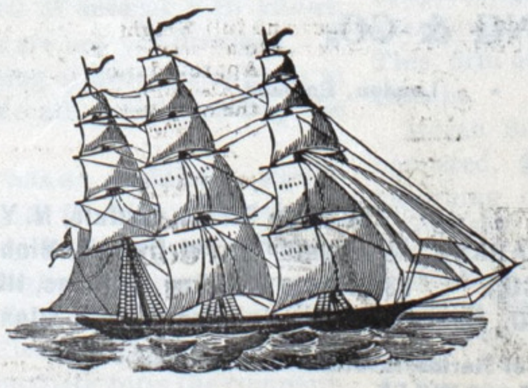

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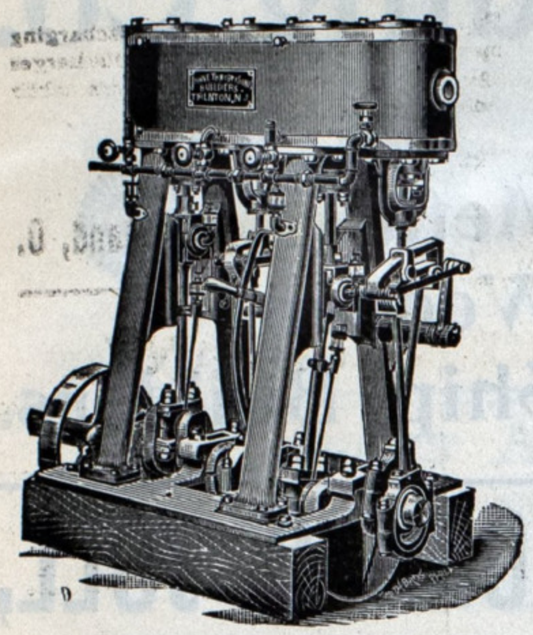

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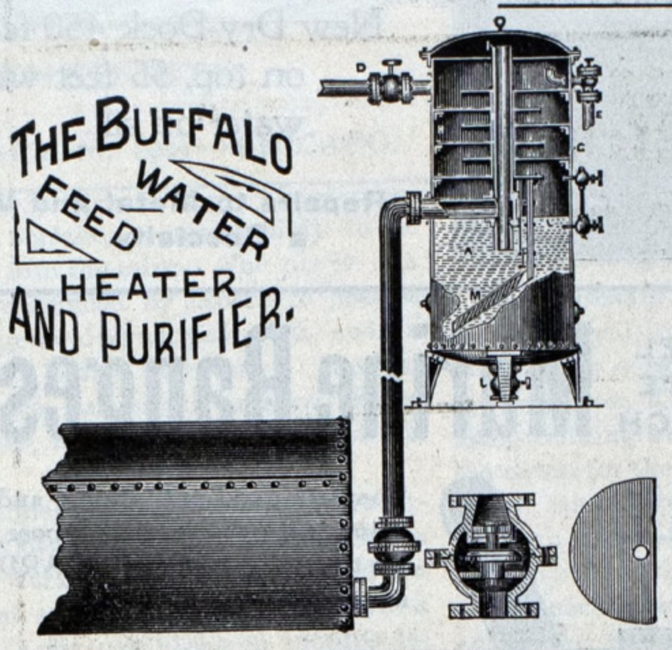

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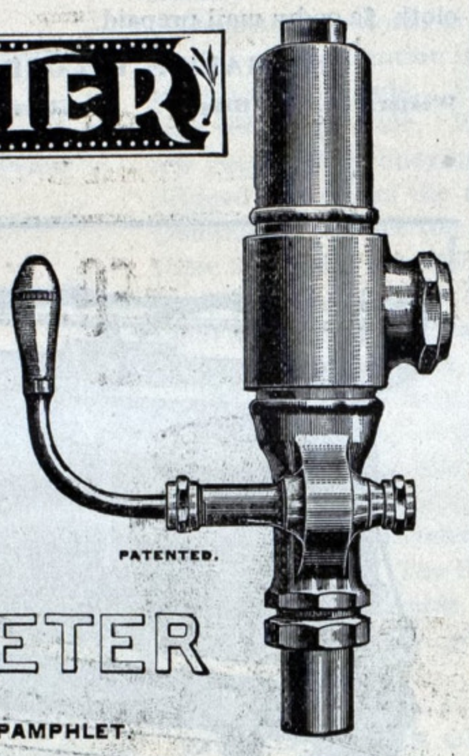

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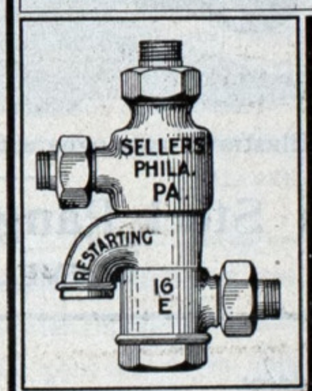

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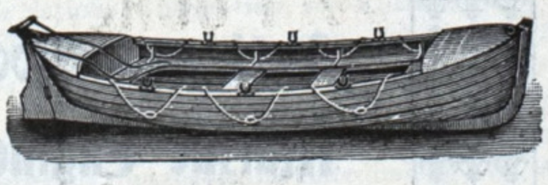

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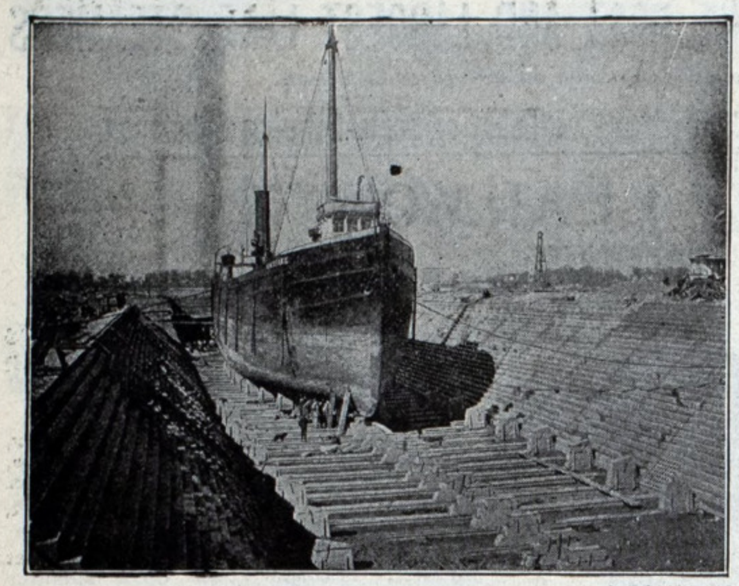

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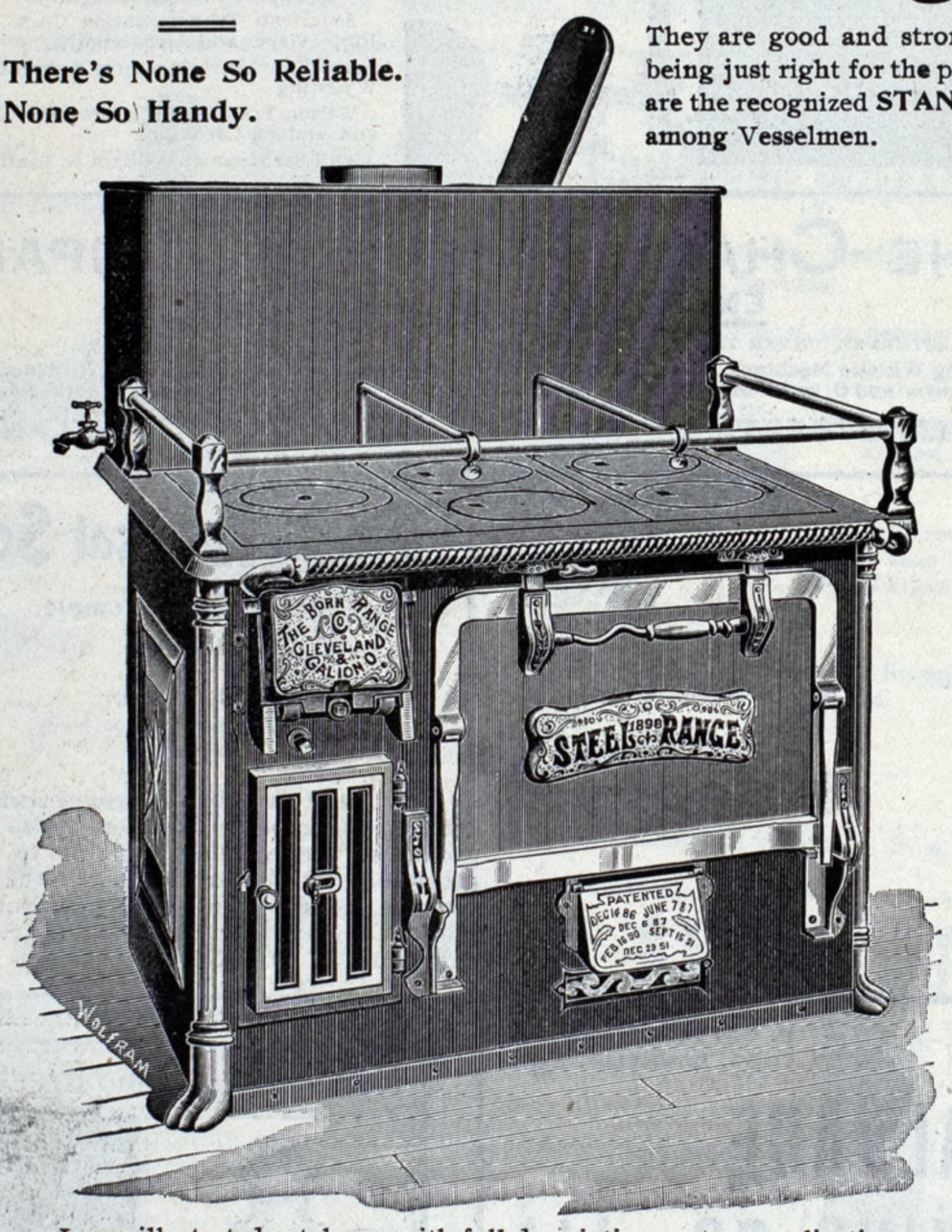

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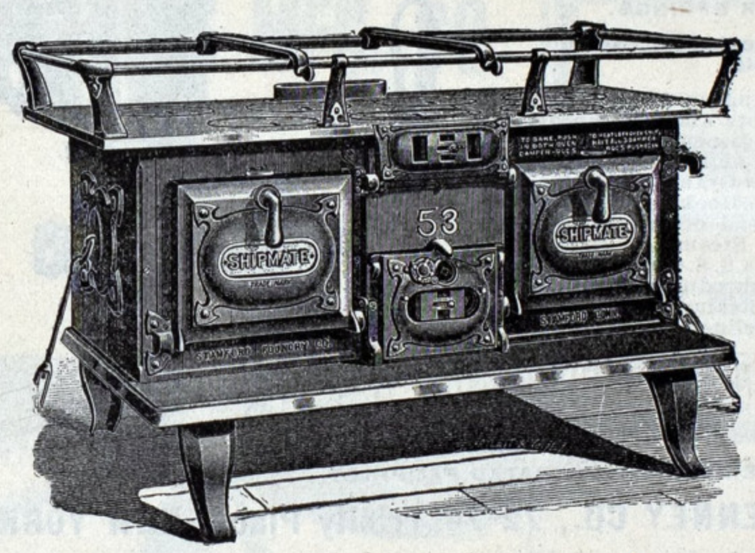

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